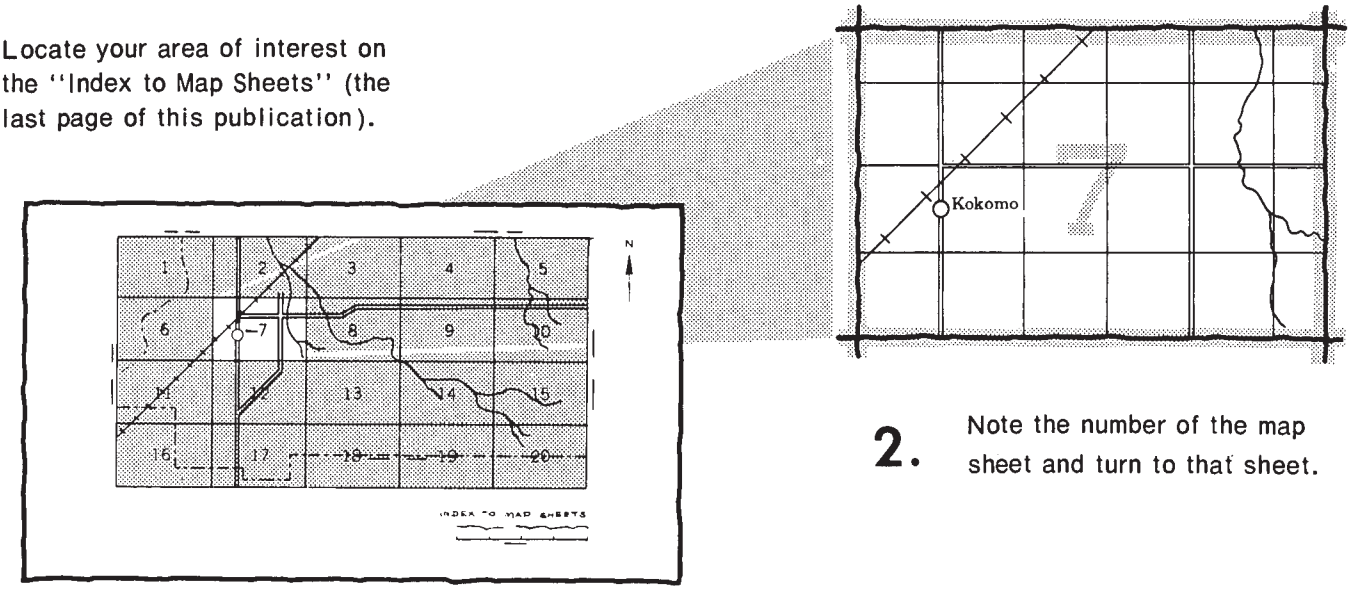
SOIL SURVEY OF

Dillon County, South Carolina

United States Department of Agriculture
Soil Conservation Service
In cooperation with
South Carolina Agricultural Experiment Station
and South Carolina Land Resources Conservation Commission

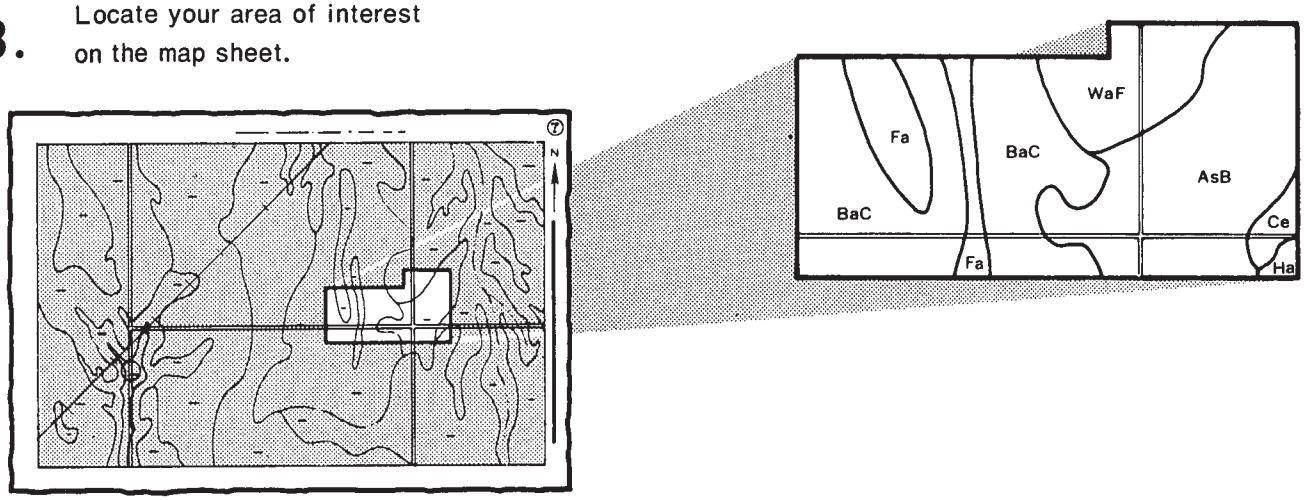
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

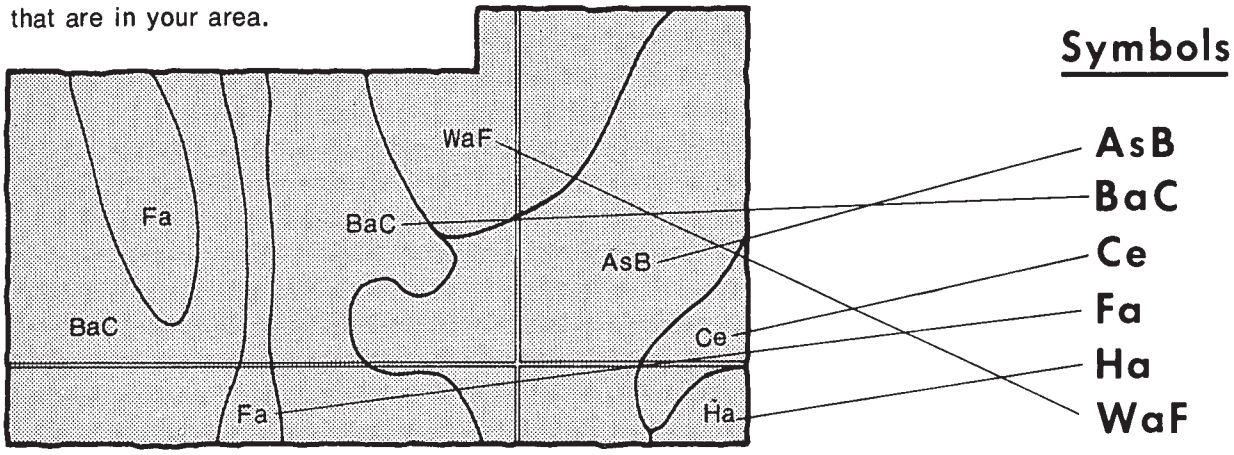


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

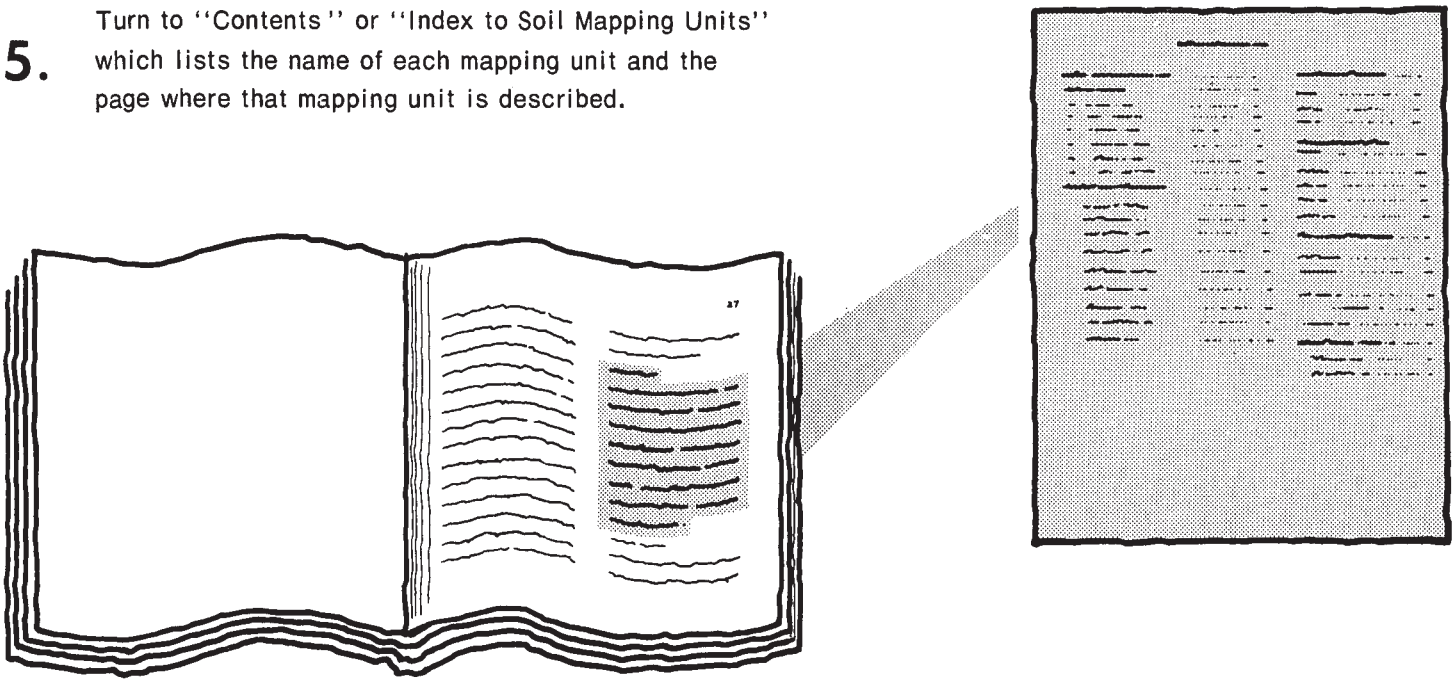


4. List the mapping unit symbols that are in your area.

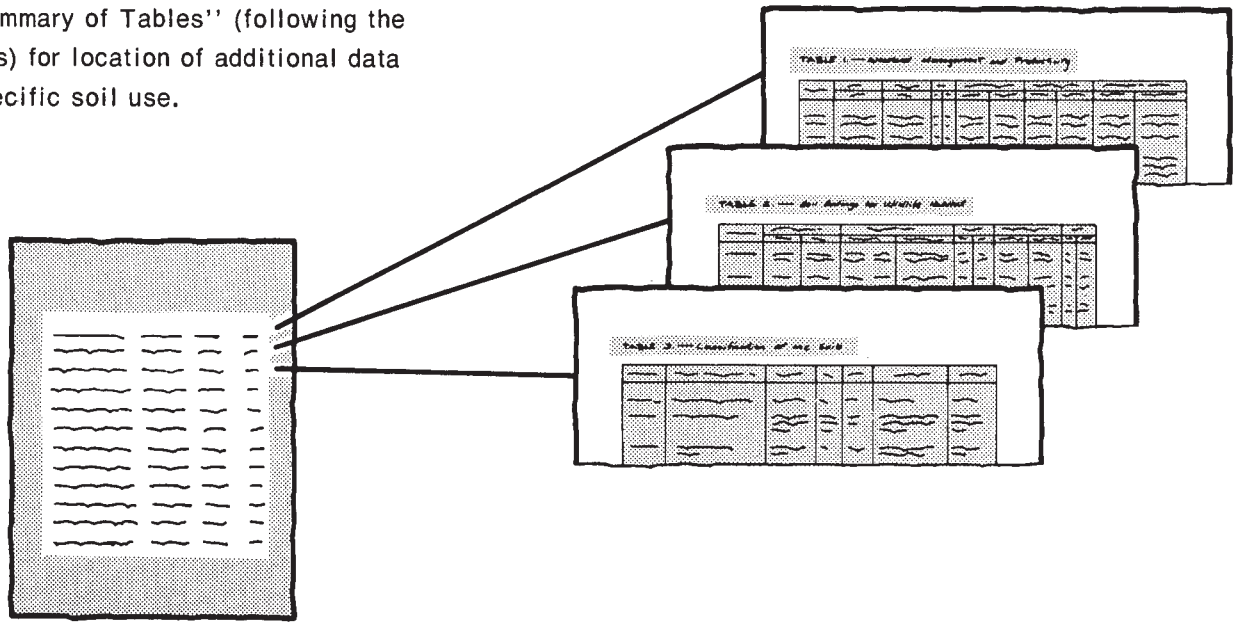


THIS SOIL SURVEY

5. Turn to "Contents" or "Index to Soil Mapping Units" which lists the name of each mapping unit and the page where that mapping unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; for specialists in wildlife management, waste disposal, or pollution control.

This is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and agencies of the States, usually the Agricultural Experiment Stations. In some surveys, other Federal and local agencies also contribute. The Soil Conservation Service has leadership for the Federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was completed in the period 1973-75. Soil names and descriptions were approved in 1976. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1976. This survey was made cooperatively by the Soil Conservation Service, the South Carolina Agricultural Experiment Station, and the South Carolina Land Resources Conservation Commission. It is part of the technical assistance furnished to the Dillon Soil and Water Conservation District.

Soil maps in this survey may be copied without permission, but any enlargement of these maps can cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

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Issued November 1978

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Foreword

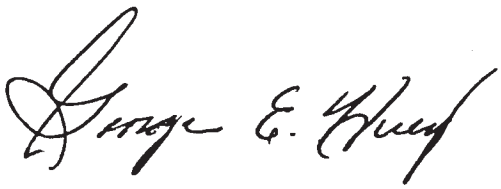
This soil survey of Dillon County, South Carolina contains much information useful in any land-planning program. Of prime importance are the predictions of soil behavior for selected land uses. Also highlighted are limitations or hazards to land uses that are inherent in the soil, improvements needed to overcome these limitations, and the impact that selected land uses will have on the environment.

This soil survey has been prepared for many different users. Farmers, foresters, and agronomists can use it to determine the potential of the soil and the management practices required for food and fiber production. Planners, community officials, engineers, developers, builders, and homebuyers can use it to plan land use, select sites for construction, develop soil resources, or identify any special practices that may be needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the soil survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur even within short distances. Soils may be seasonally wet or subject to flooding. They may be shallow to bedrock. They may be too unstable to be used as a foundation for buildings or roads. Very clayey or wet soils are poorly suited to septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map; the location of each kind of soil is shown on detailed soil maps. Each kind of soil in the survey area is described, and much information is given about each soil for specific uses. Additional information or assistance in using this publication can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

This soil survey can be useful in the conservation, development, and productive use of soil, water, and other resources.



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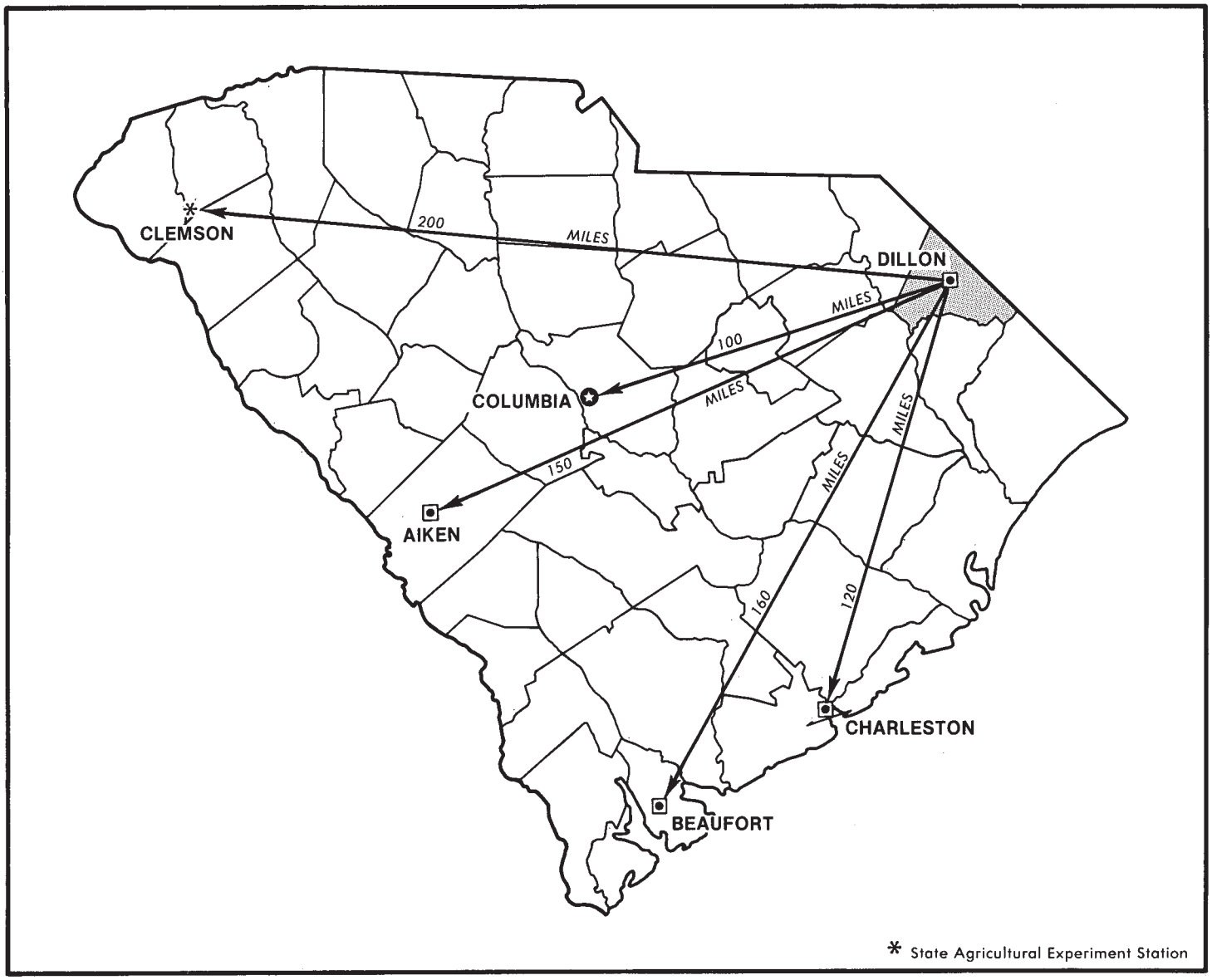
State Conservationist
Soil Conservation Service



Location of Dillon County in South Carolina.

SOIL SURVEY OF DILLON COUNTY, SOUTH CAROLINA

By Travis A. Dudley, Soil Conservation Service

Fieldwork by Travis A. Dudley, James J. Pitts, Benjamin N. Stuckey, Jr.,
E. C. Herren, and C. J. Mitchell, Jr., Soil Conservation Service,
and R. O. Richardson, South Carolina Land Resources Conservation Commission

United States Department of Agriculture, Soil Conservation Service,
in cooperation with South Carolina Agricultural Experiment Station and
South Carolina Land Resources Conservation Commission

DILLON COUNTY is in the northeastern part of South Carolina. It has a total area of 260,000 acres, or 406 square miles. Elevation ranges from about 42 feet in the southeastern and southwestern corners to about 170 feet in the northern part.

The county is roughly triangular. It is bounded on the southwest by the Great Pee Dee River, on the south by Marion County, on the southeast by the Lumber River, on the northeast by North Carolina, and on the west by Marlboro County. The Little Pee Dee River meanders in a southeasterly direction through the center of the county.

The county seat is Dillon; its population in 1970 was 5,991. It is near the center of the county. Other towns in this county are Bingham and Oak Grove in the western part; Latta and Fork in the southern part; and Lake View, Hamer, and Little Rock in the northern part.

General nature of the county

In the following pages, general information about the county is given. Climate; settlement; physiography, relief, and drainage; natural resources; and farming are described.

Climate

Climatic data in this section were specially prepared for the Soil Conservation Service by the National Climatic Center, Asheville, North Carolina.

Dillon County is hot and generally humid in summer. Winter is moderately cold but short because the mountains to the west protect the county against many cold waves. Precipitation is quite evenly distributed throughout the year and is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Dillon, South Carolina, for the period 1954 to 1974. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 44 degrees F, and the average daily minimum is 32 degrees. The lowest temperature on record, 5 degrees, occurred at Dillon on February 13, 1973. In summer the average temperature is 78 degrees, and the average daily maximum is 89 degrees. The highest temperature, 107 degrees, was recorded on June 28, 1954.

Growing degree days, shown in table 1, are equivalent to "heat units." Beginning in spring, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 26 inches, or 57 percent, usually falls during the period April through September, which includes the growing season for most crops. Two years in 10, the April-September rainfall is less than 21 inches. The heaviest 1-day rainfall during the period of record was 5.88 inches at Dillon on June 23, 1967. There are about 54 thunderstorms each year, 32 in summer.

Snowfall is rare. In 45 percent of the winters there is no measurable snowfall, and in 70 percent the snowfall is less than 2 inches. The heaviest 1-day snowfall on record was more than 5 inches.

The average relative humidity in midafternoon in spring is less than 50 percent; during the rest of the year it is about 55 percent. Humidity is higher at night in all seasons, and the average at dawn is about 90 percent. The percentage of possible sunshine is 65 in summer and 60 in winter. Prevailing winds are southwesterly. Average windspeed is highest, 9 miles per hour, in April.

In winter every few years, snow covers the ground for a few days. Every few years late in summer or in autumn, a tropical storm moving inland from the Atlantic Ocean causes extremely heavy rain for 1 to 3 days.

Settlement

Dillon County is one of the new counties of South Carolina. It separated from Marion County in 1910. The parent county, known as Marion District until 1868, dates from 1800. Before then, the region was within the boundaries of Craven County.

Isolation was the most significant factor in the early history of the area now known as Dillon County, for it is separated from the rest of the state by rivers and wide swamps. Settlers from Virginia and North Carolina began to come in about 1740, locating principally along the Little Pee Dee River and its tributaries. In general, settlement was sparse and the inhabitants poor.

After the American Revolution, development was not rapid. Settlers continued to come in, however, and eventually prosperous plantations were established.

Modern Dillon County is the result of a railroad. In 1887 the Atlantic Coastline Railroad built a shortcut from Wilson, North Carolina, to the crossing over the Great Pee Dee in Marion County. The town of Dillon began as a railroad station and grew rapidly as it became the trade center for the upper part of the county.

The county was named in honor of James W. Dillon who had been influential in bringing the railroad to the county.

The population was 25,733 in 1930, but it began to decrease during the thirties. Later it started to increase, and in 1970 there were 28,838 people in the county.

Physiography, relief, and drainage

Dillon County is made up of two broad physiographic areas: the Southern Coastal Plain and the Atlantic Coast Flatwoods. The soils in both areas are sedimentary; they were transported from other areas by the ocean or rivers and were deposited in their present position.

Most of the county is in the Southern Coastal Plain Land Resource Area. In this area the land is predominantly nearly level to gently sloping, and the stronger slopes are adjacent to streams and drainageways. Drainage is generally good, but there are many shallow, oval depressions that lack natural surface outlets. They are commonly known as "Carolina bays," and they vary in size from a few acres to more than 1,500 acres.

A small area in the southeastern part of the county adjacent to the Lumber River is in the Atlantic Coast Flatwoods Land Resource Area. The soils in this area are predominantly nearly level and very poorly drained. There are some broad areas of moderately well drained, sandy soils and a few scattered areas of excessively drained, sandy soils generally adjacent to the flood plains of the river. Other areas are somewhat poorly drained to moderately well drained and occur on intermediate positions on the terrace. Most of this area is in bottom land hardwoods.

The Great Pee Dee River and the Lumber River flow past the county on the southwest and southeast. Their main tributaries are Poccosin Swamp, Gum Swamp, Marsh Creek, Bear Swamp, Beaverdam Creek, and Ashpole Swamp. The Little Pee Dee River flows through the center of the county. Its main tributaries are Shoeheel Creek, Sweet Swamp, and Hayes Swamp. Other drainage areas include Reedy Creek, Little Reedy Creek, Buck Swamp, and Catfish Canal. These rivers and swamps and their tributaries form a dendritic pattern and flow mainly in a southeasterly direction.

Natural resources

Soil and water are the most important natural resources in the county. In Dillon County, water is abundant for domestic use and for livestock, recreation, and industry. The largest and most important sources of water are the Great Pee Dee, Little Pee Dee, and Lumber Rivers; secondary sources include manmade ponds, lakes, and wells.

Farming

The first settlement within the boundaries of the area now known as Dillon County dates back to around 1740. Cotton, corn, tobacco, and small grain were the main crops in the early days of the county.

In 1910, Dillon County was outranked by 11 counties in the State in annual farm income. In 1949 Dillon ranked first. At present, the county ranks fifth or sixth; the total annual income from farming in Dillon County is 29 million dollars.

Farm woodlands have become increasingly important in the county; more farmers are carrying out improved woodland conservation practices and deriving a supplemental income from their farm woodlands. About 58 percent of the county is woodland.

The trends toward more mechanization and the operation of larger units of land continue and are causing more farmland to be rented.

Dillon County was first included in a Soil Conservation District in December 1941. It was then part of the Lower Pee Dee Soil Conservation District, which was made up of Dillon, Florence, and Marion Counties. The Dillon Soil and Water Conservation District was organized as a separate district in August 1951 (*4*).

About 91,000 acres, or 35 percent of the county, is cropland. Most of this acreage has been adequately treated. Erosion hazard, inadequate drainage, and unfavorable soil conditions are conservation concerns on approximately 38,000 acres. The soils of Dillon County support a great variety of crops if adequately supplied with organic matter and if properly cultivated and carefully fertilized.

How this survey was made

Soil scientists made this survey to learn what kinds of soil are in the survey area, where they are, and how they can be used. The soil scientists went into the area knowing they likely would locate many soils they already knew something about and perhaps identify some they had never seen before. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; the kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles (fig. 1). A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material, which has been changed very little by leaching or by the action of plant roots.

The soil scientists recorded the characteristics of the profiles they studied, and they compared those profiles with others in counties nearby and in places more distant. Thus, through correlation, they classified and named the soils according to nationwide, uniform procedures.

After a guide for classifying and naming the soils was worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, roads, and other details that help in drawing boundaries accurately. The soil map at the back of this publication was prepared from aerial photographs.

The areas shown on a soil map are called soil map units. Some map units are made up of one kind of soil, others are made up of two or more kinds of soil, and a few have little or no soil material at all. Map units are discussed in the sections "General soil map for broad land use planning" and "Soil maps for detailed planning."

While a soil survey is in progress, samples of soils are taken as needed for laboratory measurements and for engineering tests. The soils are field tested, and interpretations of their behavior are modified as necessary during the course of the survey. New interpretations are added to meet local needs, mainly through field observations of different kinds of soil in different uses under different levels of management. Also, data are assembled from other sources, such as test results, records, field experience, and information available from state and local specialists. For example, data on crop yields under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it is readily available to different groups of users, among them farmers, managers of woodland, engineers, planners, developers and builders, homebuyers, and those seeking recreation.

General soil map for broad land use planning

The general soil map at the back of this publication shows, in color, map units that have a distinct pattern of soils and of relief and drainage. Each map unit is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map provides a broad perspective of the soils and landscapes in the survey area. It provides a basis for comparing the potential of large areas for general kinds of land use. Areas that are, for the most part, suited to certain kinds of farming or to other land uses can be identified on the map. Likewise, areas of soils having properties that are distinctly unfavorable for certain land uses can be located.

Because of its small scale, the map does not show the kind of soil at a specific site. Thus, it is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The kinds of soil in any one map unit differ from place to place in slope, depth, stoniness, drainage, or other characteristics that affect their management.

The soils in the survey area vary widely in their potential for major land uses. Table 4 shows the extent of the map units shown on the general soil map and gives general ratings of the potential of each, in relation to the other map units, for major land uses. Soil properties that pose limitations to the use are indicated. The ratings of soil potential are based on the assumption that practices in common use in the survey area are being used to overcome soil limitations. These ratings reflect the ease of overcoming the soil limitations and the probability of soil problems persisting after such practices are used.

Each map unit is rated for *cultivated crops*, *pasture*, *woodland*, *urban uses*, and *recreation areas*. Cultivated crops are those grown extensively by farmers in the survey area. Woodland refers to land that is producing either trees native to the area or introduced species. Urban uses include residential, commercial, and industrial developments. Recreation areas include campsites, picnic areas, playgrounds, and other areas that are subject to heavy foot traffic.

Nearly level to sloping soils on ridges and on the upper part of side slopes

These units consist of dominantly well drained soils that form broad stream divides. Slopes generally are long and smooth; a few, however, are short and have sharp breaks, and a few are hummocky. Branching drainageways are throughout these units except in areas dominated by soils that are sandy throughout. Most of these soils have a sandy surface layer and a bright colored subsoil.

1. Lakeland-Rutlege-Chipley

Excessively drained, very poorly drained, and moderately well drained soils that are sandy throughout

Areas of these nearly level to sloping soils are scattered throughout the county. They are predominantly along the eastern side of the Little Pee Dee River and in the southwestern part of the county.

This map unit makes up about 11.4 percent of the county. About 48 percent of the unit is Lakeland soils, about 10 percent is Rutlege soils, about 6 percent is Chipley soils, and the remaining 36 percent is minor soils.

Lakeland soils are on higher lying landscapes than Rutlege and Chipley soils. Lakeland soils are excessively drained, Rutlege soils are very poorly drained, and Chipley soils are moderately well drained. Lakeland and Chipley soils have a surface layer of sand, and Rutlege soils have a surface layer of loamy sand. Lakeland soils are sandy and droughty; Rutlege and Chipley soils have a seasonal high water table.

The minor soils in this unit are the moderately well drained Blanton soils; the well drained Fuquay and Lucy soils; the somewhat excessively drained Pocalla soils; and the poorly drained Osier, Leon, and Lynn Haven soils.

This unit is used mainly for pasture and cultivated crops. Most of the acreage has been cleared, and some of the wetter areas have been drained, but some swampy, undrained areas remain. Droughtiness and wetness are the main limitations to the use of these soils for farming and for most other purposes.

This unit has poor potential for cultivated crops, fair potential for trees and permanent pasture, and good potential for residential and other urban uses. The potential for development of habitat for openland and woodland wildlife is fair.

2. Faceville-Coxville-Varina

Well drained soils that have a loamy to sandy surface layer and a clayey subsoil and poorly drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level to gently sloping soils are in the northern part of the county. These soils formed in clayey Coastal Plain deposits at some of the highest elevations in the county.

This map unit makes up about 12.3 percent of the county. About 16 percent of the unit is Faceville soils, 14 percent is Coxville soils, 11 percent is Varina soils, and the remaining 59 percent is minor soils.

Faceville and Varina soils are on higher lying landscapes than Coxville soils. Faceville and Varina soils are well drained, and Coxville soils are poorly drained. Faceville soils have a surface layer of loamy fine sand, Coxville soils have a surface layer of fine sandy loam, and Varina soils have a surface layer of sandy loam. Varina soils have a perched seasonal high water table, and Coxville soils have an apparent seasonal high water table.

The minor soils in this unit are the well drained Dothan, Orangeburg, and Lucy soils; the moderately well drained Persanti, Clarendon, and Duplin soils; the somewhat poorly drained Dunbar, Lynchburg, and Smithboro soils; the poorly drained McColl and Rains soils; and the very poorly drained Pantego soils.

This unit is used mainly for cultivated crops, but some areas are used for pasture and timber production. Most of the acreage has been cleared, and some of the wetter areas have been drained, but some swampy, undrained areas remain. Wetness and erosion are the main limitations to the use of these soils for farming and for most other purposes. Also, ponding is common in winter and spring in some of the lower lying areas.

This unit, with adequate conservation practices to reduce erosion and improve drainage, has good potential for cultivated crops and for trees. Wetness and moderately slow permeability are severe limitations on Coxville soils; consequently, the potential for residential and other urban uses is poor. Faceville and Varina soils have good potential for urban development. The potential for development of habitat for openland and woodland wildlife is good.

3. Dothan-Coxville-Fuquay

Well drained soils that have a sandy surface layer and a loamy subsoil and poorly drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level to sloping soils are scattered throughout the county. These soils formed in loamy and clayey Coastal Plain deposits that are on high-lying landscapes.

This map unit makes up about 30.5 percent of the county. About 21 percent of the unit is Dothan soils, 13 percent is Coxville soils, 11 percent is Fuquay soils, and the remaining 55 percent is minor soils.

Dothan and Fuquay soils are on higher lying landscapes than Coxville soils. Dothan and Fuquay soils are well drained, and Coxville soils are poorly drained. Dothan soils have a surface layer of loamy fine sand, Coxville soils have a surface layer of fine sandy loam, and Fuquay soils have a surface layer of sand. Dothan and Fuquay soils have a perched water table at a depth of 2.5 to 4 feet. Coxville soils have an apparent seasonal high water table at a depth of less than 2.5 feet.

The minor soils in this unit are the well drained Summerton, Varina, and Brogdon soils; the moderately well drained Clarendon, Duplin, and Persanti soils; the somewhat poorly drained Dunbar and Lynchburg soils; the poorly drained Rains soils; and the very poorly drained Pantego, Johnston, and Rutlege soils.

This unit is used mainly for cultivated crops, but some areas are used for pasture and timber production. Most of the acreage has been cleared, and some has been drained, but some swampy, undrained areas remain. Wetness and erosion are the main limitations to the use of these soils for farming and for other purposes. Also, ponding and

flooding are common in winter and spring in some of the lower lying areas.

This unit has good potential for cultivated crops and for trees. Wetness and moderately slow permeability are severe limitations on Coxville soils; consequently, the potential for residential and urban uses is poor. Dothan and Fuquay soils have good potential for urban development. The potential for development of habitat for openland and woodland wildlife is good.

4. Persanti-Coxville-Varina

Moderately well drained, poorly drained, and well drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level to gently sloping soils are in the south-central and west-central parts of the county. These soils formed in clayey Coastal Plain sediment on intermediate landscapes.

This map unit makes up about 17.1 percent of the county. About 24 percent of the unit is Persanti soils, 17 percent is Coxville soils, 14 percent is Varina soils, and the remaining 45 percent is minor soils.

Persanti soils are on higher lying landscapes than Coxville soils and are slightly lower than Varina soils. Persanti soils are moderately well drained, Coxville soils are poorly drained, and Varina soils are well drained. Persanti and Coxville soils have a surface layer of fine sandy loam, and Varina soils have a surface layer of sandy loam. Persanti and Coxville soils have an apparent seasonal high water table, and Varina soils have a perched seasonal high water table.

The minor soils in this unit are the well drained Dothan and Summerton soils, the moderately well drained Duplin soils, the somewhat poorly drained Smithboro and Dunbar soils, and the poorly drained Cantey soils.

This unit is used mainly for cultivated crops, but some areas are used for pasture and timber production. Most of the acreage has been cleared, and some has been drained, but some swampy, undrained areas remain. Wetness and erosion are the main limitations to the use of these soils for farming and for most other purposes. Also, ponding is common in winter and spring in some of the lower lying areas.

This unit has good potential for cultivated crops and for trees. Wetness and moderately slow or slow permeability are severe limitations on Coxville and Persanti soils; consequently, the potential for residential and other urban uses is poor. Varina soils have fair potential for urban uses; slow permeability in the lower part of the subsoil is a moderate limitation that can be overcome by good design and careful installation procedures. The potential for development of habitat for openland and woodland wildlife is good.

Dominantly nearly level soils on the lower part of side slopes and on flats

These units consist of soils on low flats and in low-lying areas. Most soils have restricted drainage. Slopes are dominantly less than 1 percent. Drainage patterns are poorly defined, and some areas are ponded. These soils generally have a loamy or sandy surface layer and a clayey subsoil that is dominated by colors of low chroma or that contains many gray mottles.

5. Cantey-Smithboro-Persanti

Poorly drained, somewhat poorly drained, and moderately well drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level to gently sloping soils are in the southwestern part of the county adjacent to the Great Pee Dee River. These soils formed in clayey Coastal Plain deposits at low elevations.

This map unit makes up about 9.0 percent of the county. About 40 percent of the unit is Cantey soils, 28 percent is Smithboro soils, 16 percent is Persanti soils, and the remaining 16 percent is minor soils.

Cantey soils are on lower lying landscapes than Smithboro and Persanti soils. Cantey soils are poorly drained, Smithboro soils are somewhat poorly drained, and Persanti soils are moderately well drained. Cantey and Smithboro soils have a surface layer of loam, and Persanti soils have a surface layer of fine sandy loam. All of these soils have a seasonal high water table.

The minor soils in this unit are the well drained Summerton soils and the very poorly drained Byars and Paxville soils.

This unit is used mainly for timber production, but some tracts have been cleared and are used for cultivated crops and pasture. Most of the acreage is in woodland. Wetness is the main limitation to woodland use or management. Flooding and ponding are common in winter and spring.

This unit has good potential for cultivated crops and for trees. Wetness and the clayey subsoil, which is slowly permeable, are severe limitations that are difficult to overcome; consequently, the potential for residential and other urban uses is poor. The potential for development of habitat for wetland wildlife is fair.

6. Coxville-Smithboro

Poorly drained and somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level soils are in the western part of the county adjacent to the Marlboro County line. These soils formed in clayey Coastal Plain deposits at low elevations.

This map unit makes up about 4.2 percent of the county. About 43 percent is Coxville soils, 25 percent is Smithboro soils, and the remaining 32 percent is minor soils.

Coxville soils are slightly lower in elevation than Smithboro soils. Coxville soils are poorly drained, and Smithboro soils are somewhat poorly drained. Coxville soils have a surface layer of fine sandy loam, and Smithboro soils have a surface layer of loam. Both soils have a seasonal high water table.

The minor soils in this unit are the moderately well drained Persanti and Duplin soils, the somewhat poorly drained Dunbar soils, the poorly drained Cantey soils, and the very poorly drained Pantego soils.

This unit is used mainly for timber production, but some areas have been cleared and are used for cultivated crops and pasture. Most of the acreage is in woodland. Wetness is the main limitation to the use of these soils for timber production, farming, and most other purposes. Also, ponding and flooding are common in winter and spring.

This unit has good potential for cultivated crops and for trees. Wetness and the clayey subsoil, which is moderately slowly or slowly permeable, are severe limitations that are difficult to overcome; consequently, the potential for residential and other urban uses is poor. The potential for development of habitat for wetland wildlife is fair.

Nearly level soils on flood plains

These units consist of mostly poorly drained or very poorly drained soils on narrow to medium flood plains of large creeks and rivers. Drainage patterns are very poorly defined. These soils are frequently flooded, and some have water on the surface most of the time. These soils have a loamy or sandy surface layer and are dominated by gray colors below the surface layer.

7. Johnston-Rutlege-Chipley

Very poorly drained soils that are loamy throughout or sandy throughout and moderately well drained soils that are sandy throughout

Areas of these nearly level soils are mostly along the flood plains and adjacent landscapes of the Little Pee Dee and Lumber Rivers. One small area is on the flood plain of Buck Swamp. These soils formed in loamy or sandy, stratified fluvial or marine sediments at low elevations.

This map unit makes up about 10.5 percent of the county. About 33 percent is Johnston soils, 30 percent is Rutlege soils, 6 percent is Chipley soils, and the remaining 31 percent is minor soils.

Johnston and Rutlege soils are at lower elevations than Chipley soils. Johnston and Rutlege soils are very poorly drained, and Chipley soils are moderately well drained. Johnston soils have a thick surface layer of mucky loam that is high in content of organic matter. Rutlege soils have a surface layer of loamy sand, and Chipley soils have a surface layer of sand. Johnston and Rutlege soils have a seasonal high water table and are frequently flooded. Chipley soils have a seasonal high water table.

The minor soils in this unit are the excessively drained Lakeland and Rimini soils; the somewhat poorly drained to moderately well drained Johns soils; the poorly drained Osier, Lumbee, Leon, and Lynn Haven soils; and the very poorly drained Paxville soils.

This unit is used mainly for timber production, but a few small tracts are used for cultivated crops. The potential for trees is good. Wetness and flooding are the main limitations to the use of these soils for cultivated crops and for most other purposes. These are severe limitations and are difficult to overcome; consequently, the potential for residential and other urban uses is poor. The potential for development of habitat for wetland wildlife is good.

8. Ponzer

Very poorly drained soils that have a mucky surface layer and loamy underlying material

Areas of these nearly level soils are in the southwestern part of the county. The areas are Catfish Bay and a small area along Catfish Canal. These soils formed in loamy fluvial sediments at lower elevations than the surrounding land.

This map unit makes up about 2.0 percent of the county. About 39 percent of the unit is Ponzer soils, and the remaining 61 percent is minor soils.

Ponzer soils are on low-lying landscapes and are very poorly drained. These soils have a surface layer of mucky loam. They also have a seasonal high water table.

The minor soils in this unit are the poorly drained Leon and Cantey soils and the very poorly drained Pantego, Byars, Johnston, and Rutlege soils.

This unit is used mainly for timber production, but a large area in Catfish Bay has been cleared and drained. This cleared area is used for cultivated crops. Some swampy, undrained areas remain. Wetness and flooding are the main limitations to the use of these soils for farming and other purposes.

This unit has high potential for truck crops and for cultivated farm crops. Wetness and flooding are severe limitations and are difficult to overcome; consequently, the potential for residential and other urban uses is poor. The potential for development of habitat for wetland wildlife is good.

9. Chastain

Poorly drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level soils are on the flood plains of Buck Swamp, Reedy Creek, and Little Reedy Creek. These areas are lower than the surrounding land.

This map unit makes up about 2.5 percent of the county. About 61 percent of the unit is Chastain soils, and the remaining 39 percent is minor soils.

Chastain soils are on low-lying landscapes and are poorly drained. These soils have a surface layer of loam. They also have a seasonal high water table.

The minor soils in this unit are the moderately well drained Persanti soils; the somewhat poorly drained to moderately well drained Johns soils; the poorly drained Coxville, Cantey, and Lumbee soils; and the very poorly drained Byars and Paxville soils.

This unit is used mainly for timber production, and it is entirely in woodland. Wetness and flooding are the main limitations to the use of these soils for farming and other purposes.

This unit has poor potential for cultivated crops and good potential for trees. Wetness and flooding are severe limitations and are difficult to overcome; consequently, the potential for residential and other urban uses is poor. The potential for development of habitat for wetland wildlife is good.

10. Tawcaw

Somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil

Areas of these nearly level soils are on the flood plain of the Great Pee Dee River. These areas are at lower elevations than the surrounding land.

This map unit makes up about 0.5 percent of the county. About 79 percent of the unit is Tawcaw soils, and the remaining 21 percent is minor soils.

Tawcaw soils are on low-lying landscapes and are somewhat poorly drained. These soils have a surface layer of silty clay loam. They also have a seasonal high water table.

The minor soils in this unit are the poorly drained Chastain and Cantey soils and the very poorly drained Byars soils.

This unit is used mainly for timber production, and it is entirely in woodland. Wetness and flooding are the main limitations to the use of these soils for farming and other purposes.

This unit has good potential for cultivated crops and for trees. Wetness and flooding are severe limitations and are difficult to overcome; consequently, the potential for residential and other urban uses is poor. The potential for development of habitat for wetland wildlife is good.

Broad land use considerations

Each year a considerable amount of land is being developed for urban uses in Dillon, Latta, Lakeview, Riverdale, Floydale, and other communities in the county. About 10,400 acres, or nearly 4 percent of the survey area, is urban or built-up land. The general soil map is most helpful in planning the general outline of urban areas; it cannot be used for the selection of sites for specific urban structures. In general, in the survey area the soils that have good potential for cultivated crops also have good potential for urban development. The data about specific soils in this survey can be helpful in planning future land use patterns.

Areas where the soils are so unfavorable as to be prohibitive to urban development are not extensive in the survey area. Large areas, however, of the Johnston-Rutlege-Chipley map unit, the Chastain map unit, and the Tawcaw map unit are on flood plains on which flooding and ponding are severe limitations. Also, urban development is very costly on the soft, wet organic soils in the Ponzer unit. Parts of the Cantey-Smithboro-Persanti unit and of the Coxville-Smithboro unit have poor potential for urban development because of clayey soils that have a seasonal high water table.

In large areas of the county, the soils can be developed for urban uses at lower costs than can the soils named above. These include parts of the Dothan-Coxville-Fuquay, Faceville-Coxville-Varina, Persanti-Coxville-Varina, and Lakeland-Rutlege-Chipley map units. The first three of these units are excellent farmland, and their potential for crops and pasture should not be overlooked when broad land uses are considered. Most of the soils in the Lakeland-Rutlege-Chipley unit are sandy throughout, but landscape position, soil drainage, and other soil qualities are favorable for residential and other nonfarm uses.

In some areas the soils have good potential for farming and fair or poor potential for nonfarm uses. These are identified as map units 5, 6, 8, and 10 on the general soil map. Cantey, Coxville, Johnston, and Ponzer soils are dominant in these units. Wetness is a limitation to nonfarm uses. With proper drainage and shaping of the surface, this limitation can be overcome. It should be noted, however, that these soils have good potential for farming, and many farmers have provided sufficient drainage for farm crops.

Soils of the Dothan-Coxville-Fuquay, Persanti-Coxville-Varina, and Faceville-Coxville-Varina map units, if adequately drained, are suited to cotton, corn, tobacco, soybeans, small grain, and cucumbers. Parts of the Cantey-Smithboro-Persanti and Coxville-Smithboro map units are also suitable for these crops. Soils of the Ponzer unit, if proper drainage has been installed, are uniquely suited to vegetables and other specialty crops.

Most of the soils of the county have good potential for improved pasture. Soils of the Lakeland-Rutlege-Chipley map unit have good potential for Coastal bermudagrass pasture and hay.

Most of the soils of the county have good or fair potential for use as woodland. Commercially valuable trees are not common and generally do not grow so rapidly on the wetter soils of the Johnston-Rutlege-Chipley, Chastain, and Tawcaw map units as they do on the soils of the other units.

The nearly level to sloping soils of the Lakeland-Rutlege-Chipley map unit have excellent potential as sites for parks and recreation areas. Undrained swamps of the Johnston-Rutlege-Chipley, Chastain, and Tawcaw map units are good nature study areas. All of these map units provide habitat for many important species of wildlife.

Soil maps for detailed planning

The map units shown on the detailed soil maps at the back of this publication represent the kinds of soil in the survey area. They are described in this section. The descriptions together with the soil maps can be useful in determining the potential of a soil and in managing it for food and fiber production; in planning land use and developing soil resources; and in enhancing, protecting, and preserving the environment. More information for each map unit, or soil, is given in the section "Use and management of the soils."

Preceding the name of each map unit is the symbol that identifies the soil on the detailed soil maps. Each soil description includes general facts about the soil and a brief description of the soil profile. In each description, the principal hazards and limitations are indicated, and the management concerns and practices needed are discussed.

The map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for which the unit is named. Most of the delineations shown on the detailed soil map are phases of soil series.

Soils that have profiles that are almost alike make up a *soil series.* Except for allowable differences in texture of the surface layer or of the underlying substratum, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement in the profile. A soil series commonly is named for a town or geographic feature near the place where a soil of that series was first observed and mapped. The Orangeburg series is a soil series in Dillon County.

Soils of one series can differ in texture of the surface layer or in the underlying substratum and in slope, erosion, stoniness, salinity, wetness, or other characteristics that affect their use. On the basis of such differences, a soil series is divided into phases. The name of a *soil phase* commonly indicates a feature that affects use or management. For example, Dothan loamy fine sand, 0 to 2 percent slopes, is one of several phases within the Dothan series.

A *soil association* is made up of soils that are geographically associated and are shown as one unit on the map because it is not practical to separate them. A soil association has considerable regularity in geographic pattern and in the kinds of soil that are a part of it. The extent of the soils can differ appreciably from one delineation to another; nevertheless, interpretations can be made for use and management of the soils. Johnston-Rutlege association, frequently flooded, is an example.

Most map units include small, scattered areas of soils other than those that appear in the name of the map unit. Some of these soils have properties that differ substantially from those of the dominant soil or soils and thus could significantly affect use and management of the map unit. These soils are described in the description of each map unit. Some of the more unusual or strongly contrasting soils that are included are identified by a special symbol on the soil map.

The acreage and proportionate extent of each map unit are given in table 5, and additional information on properties, limitations, capabilities, and potentials for many soil uses is given for each kind of soil in other tables in this survey. (See "Summary of tables.") Many of the terms used in describing soils are defined in the Glossary.

Soil descriptions

BaB—Blanton sand, 0 to 6 percent slopes. This deep, moderately well drained, nearly level or gently sloping soil is on broad ridges of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 50 acres.

Typically, the surface layer is brown sand to a depth of 6 inches. The subsurface layer is light yellowish brown sand between the depths of 6 and 24 inches, yellowish brown sand that has pale brown mottles between the depths of 24 and 40 inches, and pale brown sand that has brownish yellow mottles between the depths of 40 and 50 inches. The subsoil is light yellowish brown sandy loam that has strong brown and light gray mottles between the depths of 50 and 58 inches; yellowish brown sandy clay loam that has gray, strong brown, and pale brown mottles between the depths of 58 and 68 inches; and yellowish brown sandy clay loam that has gray mottles between the depths of 68 to 78 inches.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers are medium acid to very strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate, and the available water capacity is low. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lakeland, Fuquay, and Pocalla soils. Also included are a few areas of similar soils that do not have gray mottles in the subsoil and a few areas of soils in which content of nodules of plinthite within 60 inches of the surface is more than 5 percent. Small depressional areas of wet soils are included and are shown on the map by a symbol. Narrow, steep slopes are also included and are shown by a symbol. Included soils make up about 10 to 20 percent of this map unit.

The Potential is poor for row crops and small grain because of droughtiness and the low nutrient holding capacity of the soil. The soil has fair potential for hay and pasture. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help conserve organic matter and moisture and prevent damage by soil blowing.

This soil has fair potential for slash pine, loblolly pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations. Capability subclass IIIs; ordination symbol 3s.

BrA—Brogdon sand, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on broad, smooth landscapes of the Coastal Plain. Individual areas are 5 to 35 acres.

Typically, the surface layer is dark grayish brown sand to a depth of 8 inches. The subsurface layer is light yellowish brown sand between the depths of 8 and 15 inches. The subsoil between the depths of 15 and 36 inches is yellowish brown sandy loam. Below this, between the depths of 36 and 56 inches, is another subsurface layer that is brownish yellow loamy sand that has pale brown mottles. Between the depths of 56 and 65 inches, the subsoil is yellowish brown sandy clay loam that has strong brown, yellowish red, and very pale brown mottles; content of nodules of plinthite is about 10 percent. Between the depths of 65 and 75 inches, the subsoil is sandy clay loam mottled with gray, yellowish red, and yellowish brown; content of nodules of plinthite is about 15 percent.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers are slightly acid to strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderately rapid in the upper part of the subsoil and moderate in the lower part. Available water capacity is medium to low. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are a few small areas of Pocalla, Fuquay, Dothan, and Clarendon soils. Also included are a few small areas of moderately well drained soils. Some mapped areas include small, depressional areas of poorly drained soils that are shown on the map by a symbol. Also included are areas of similar soils that have few or no nodules of plinthite. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Returning crop residue to the soil helps maintain favorable tilth. Large amounts of crop residue and fertilizer are needed to maintain yields, maintain tilth, improve nutrient holding capacity, and improve available water capacity. Stripcropping with small grain or permanent windbreaks helps reduce soil blowing on large fields.

This soil has good potential for loblolly pine and slash pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations. Capability subclass IIs; ordination symbol 2o.

By—Byars loam. This deep, very poorly drained, nearly level soil is on broad flats and in slightly depressional areas of the Coastal Plain. Individual areas are 5 to 1,000 acres.

Typically, the surface layer is very dark gray loam to a depth of 16 inches. The subsoil between the depths of 16 and 75 inches is very firm, gray clay that has few to common mottles in shades of brown or light gray.

This soil is low in natural fertility and high in content of organic matter. The surface layer is medium acid to very strongly acid, and the subsoil is strongly acid to extremely acid. Permeability is slow, and available water capacity is medium. Tilth is fairly good. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Cantey, Smithboro, Paxville, Pantego, and Coxville soils. Also included are areas of soils that have a surface layer of clay loam. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited by the high water table and by common flooding. Returning crop residue to the soil helps maintain favorable tilth. Wetness and flooding are severe hazards if cultivated crops are grown. Diversion dams, dikes, drainage field ditches, and drainage land grading help lower the water table and reduce flooding.

This soil has good potential for sweetgum, loblolly pine, water tupelo, slash pine, and water oak. Bedding is needed in places to help establish the pine species on this soil. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban uses. Wetness and flooding are severe limitations to urban development. Capability subclass IIIw; ordination symbol 2w.

Ca—Cantey loam. This deep, poorly drained, nearly level soil is in low-lying areas adjacent to the Great Pee Dee River. Individual areas are 5 to 300 acres.

Typically, the surface layer is very dark gray loam to a depth of 6 inches. The subsoil between the depths of 6 and 75 inches is gray clay that has few to common yellowish brown and yellowish red mottles.

This soil is low in natural fertility and medium in content of organic matter. It is strongly acid or very strongly acid throughout the profile. Permeability is slow, and available water capacity is medium. Tilth is fairly good. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Smithboro, Byars, Lumbee, and Persanti soils. Also included are a few depressional areas of soils on which water ponds almost the year around. Included soils make up about 15 to 25 percent of this map unit.

Potential is fair for row crops. Potential is limited by a high water table and by frequent flooding. The soil has good potential for hay and pasture. Returning crop residue to the soil helps maintain favorable tilth. Wetness and flooding are severe hazards if cultivated crops are grown. Diversion dams, dikes, drainage field ditches, and drainage land grading help lower the water table and reduce flooding.

This soil has good potential for loblolly pine, slash pine, and sweetgum. The high water table and restricted drainage are limitations affecting management. Bedding is needed in places to establish the pine species on this soil. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban use. Wetness and flooding are severe limitations to urban development. Capability subclass IVw; ordination symbol 2w.

Ch—Chastain loam, frequently flooded. This deep, poorly drained, nearly level soil is on the flood plains of Reedy Creek and Buck Swamp. This unit is in one area of about 4,000 acres.

Typically, the surface layer is dark grayish brown loam to a depth of 5 inches. The subsoil between the depths of 5 and 10 inches is light brownish gray clay loam mottled with yellow and brown, and between the depths of 10 and 52 inches it is gray clay mottled with yellowish brown and light gray. The underlying material is gray sand between the depths of 52 and 72 inches.

This soil is low in natural fertility and medium in content of organic matter. Reaction is strongly acid or very strongly acid throughout the profile. Permeability is slow, and available water capacity is medium.

Included with this soil in mapping are small areas of Coxville, Cantey, Johns, Lumbee, Byars, and Paxville soils. Also included are areas of soils that have a surface layer of fine sandy loam or clay loam. Included soils make up 20 to 30 percent of this map unit.

All of this map unit is in woodland. Most trees are water-tolerant hardwoods, and some pines grow in the higher lying areas. This soil has good potential for sweetgum, water oak, slash pine, and loblolly pine. Wetness is the main hazard to management, but this can be overcome by using special equipment and by logging during the drier season. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

This soil has poor potential for farming and urban use. Wetness and common flooding are severe limitations. These limitations can be partially overcome only by major flood control and drainage measures. Capability subclass VIIw; ordination symbol 2w.

CpA—Chipley sand, 0 to 2 percent slopes. This deep, moderately well drained, nearly level soil is in broad, smooth areas of stream terraces and uplands of the Coastal Plain. Individual areas are 5 to 100 acres.

Typically, the surface layer is very dark grayish brown sand to a depth of 9 inches. The underlying material is sand. Between the depths of 9 and 35 inches, it is light yellowish brown, pale brown, and very pale brown and has a few gray and brown mottles. Between the depths of 35 and 80 inches, it is light gray and has brown and yellow mottles.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid or strongly acid, and the underlying layer is strongly acid or very strongly acid. Permeability is rapid, and available water capacity is very low or low. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lakeland, Leon, Osier, Rutlege, and Rains soils. Leon, Osier, Rutlege, and Rains soils are in wet, depressional areas and are shown on the map by a wet spot symbol. A few small areas of included soils have texture of loamy sand. Included soils make up about 10 to 20 percent of this map unit.

Potential is poor for row crops and small grain and fair for Coastal bermudagrass. Potential is limited for row crops and small grain because of droughtiness and low nutrient holding capacity. Wetness is a moderate hazard if cultivated crops are grown. Crop residue management, minimum tillage, and drainage help improve the physical condition and improve the nutrient holding capacity of the soil.

This soil has good potential for slash pine, loblolly pine, and longleaf pine. Equipment restrictions are moderate limitations to woodland use and management.

This soil has low potential for most urban uses. Limitations are caused by wetness, seepage, and sand. These limitations can be overcome but generally require major soil reclamation, special design, or intensive maintenance. Capability subclass IIIs; ordination symbol 2s.

Cr—Clarendon loamy sand. This deep, moderately well drained, nearly level soil is in broad, flat areas of uplands of the Coastal Plain. Individual areas are 5 to 100 acres.

Typically, the surface layer is dark grayish brown loamy sand to a depth of 7 inches. The subsurface layer, between the depths of 7 and 11 inches, is light yellowish brown loamy sand. The subsoil between the depths of 11 and 62 inches is yellowish brown sandy clay loam that has gray mottles and nodules of plinthite. Between the depths of 62 and 72 inches, it is red, brown, and gray sandy loam.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderately slow. Available water capacity is medium. Tilth is generally good on this soil. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Dothan, Duplin, Varina, Dunbar, and Lynchburg soils. Small depressional areas of Coxville and Rains soils are included and are shown on the map by a wet spot symbol. Some areas have a similar soil in which content of nodules of plinthite within 60 inches of the surface is less than 5 percent. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Wetness is a moderate hazard during periods of high rainfall because of a high water table. Returning crop residue to the soil helps maintain favorable tilth. Drainage field ditches and subsurface drainage help lower the water table and reduce losses caused by wetness.

This soil has good potential for loblolly pine and slash pine. There are no significant limitations to woodland use or management.

Potential is fair for most urban uses. Depth to the water table is a limitation, but this can be overcome by

artificial drainage. The lower part of the subsoil has moderately slow permeability, which is a severe limitation for septic tank absorption fields. This limitation can be partially overcome by increasing the size of the absorption area or by modifying the filter field itself. Capability subclass IIw; ordination symbol 2w.

Cx—Coxville fine sandy loam. This deep, poorly drained, nearly level soil is in broad, flat and slightly depressional areas of uplands of the Coastal Plain. Individual areas are 5 to 500 acres.

Typically, the surface layer is very dark gray fine sandy loam to a depth of 7 inches. The subsurface layer, between the depths of 7 and 14 inches, is light gray fine sandy loam. The subsoil is light gray clay loam that has yellowish brown mottles between the depths of 14 and 25 inches; light gray clay that has strong brown, brown, and brownish yellow mottles between the depths of 25 and 62 inches; and light gray clay that has yellowish brown and strong brown mottles between the depths of 62 and 80 inches.

This soil is low in natural fertility and moderate in content of organic matter. The surface layer is medium acid to very strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderately slow, and available water capacity is medium to high. Tilth is generally good on this soil. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Rains, Pantego, Lynchburg, Dunbar, and Smithboro soils. Also included are some areas of soils that have a surface layer of sandy loam or clay loam. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for corn, soybeans, small grain, hay, and pasture. Potential is somewhat limited by a seasonal high water table. Tilth can be maintained by returning crop residue to the soil. Wetness and ponding are severe hazards if cultivated crops are grown. Drainage field ditches, subsurface drainage, drainage land grading, and diversion dikes help reduce ponding and lower the water table.

This soil has good potential for loblolly pine, slash pine, water oak, and willow oak. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban development because of wetness. Capability subclass IIIw; ordination symbol 2w.

DaA—Dothan loamy fine sand, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on broad, smooth ridges of uplands of the Coastal Plain. Individual areas are 5 to 150 acres.

Typically, the surface layer is dark grayish brown loamy fine sand to a depth of 8 inches. The subsurface layer, between the depths of 8 and 14 inches, is light yellowish brown loamy sand. The subsoil is sandy clay loam. Between the depths of 14 and 35 inches, it is yellowish brown and has strong brown mottles; between the depths of 35 and 58 inches, it is yellowish brown and has yellowish red and strong brown mottles, and content of nodules of plinthite is 5 to 15 percent; and between the depths of 58 and 75 inches, it is yellowish brown and strong brown and has yellowish red and gray mottles.

This soil is low in natural fertility and content of organic matter. The surface layer ranges from medium acid to very strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Fuquay, Brogdon, Varina, and Clarendon soils. Long, narrow areas of soils that have slopes of 2 to 6 percent are included in some mapped areas. Some included soils have a subsoil of clay loam. Some areas mapped as this soil include small depressional areas of poorly drained soils that are shown on the map by a wet spot symbol. Some areas of this soil have a surface layer of sandy loam or fine sandy loam. Included soils make up about 20 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Tilth can be maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help build up organic matter and conserve moisture.

This soil has good potential for slash pine, loblolly pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. Moderately slow permeability in the lower part of the subsoil is a moderate limitation for septic tank absorption fields, but this limitation can be partially overcome or modified by special planning, design, or maintenance. Capability class I; ordination symbol 2o.

DaB—Dothan loamy fine sand, 2 to 6 percent slopes. This deep, well drained, gently sloping soil is on broad, smooth ridges and long narrow slopes parallel to streams and drainageways of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 80 acres.

Typically, the surface layer is dark grayish brown loamy fine sand to a depth of 8 inches. The subsurface layer, between the depths of 8 and 14 inches, is light yellowish brown loamy sand. The subsoil is sandy clay loam. Between the depths of 14 and 35 inches, it is yellowish brown and has strong brown mottles; between the depths of 35 and 58 inches, it is yellowish brown and has yellowish red and strong brown mottles, and content of nodules of plinthite is 5 to 15 percent; and between the depths of 58 and 75 inches, it is yellowish brown and strong brown and has yellowish red and gray mottles.

This soil is low in natural fertility and content of organic matter. The surface layer ranges from medium acid to very strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate in the upper

part of the subsoil and moderately slow in the lower part of the subsoil, which contains nodules of plinthite. Available water capacity is medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Fuquay, Varina, and Summerton soils. Also included are small areas of soils on which erosion has exposed the subsoil. A few small areas of included soils have slopes of less than 2 percent or of more than 6 percent. Some areas mapped as this soil include small depressional areas of poorly drained soils that are shown on the map by a wet spot symbol. Some areas of this soil have a surface layer of sandy loam or fine sandy loam. Included soils make up about 10 to 25 percent of this map unit.

Potential is fair for row crops, small grain, hay, and pasture. Potential is somewhat limited because of the slope. Tilth can be maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help reduce runoff and control erosion. Contour tillage, terraces, and grassed waterways also help control erosion.

This soil has good potential for slash pine, loblolly pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. Slope and moderately slow permeability in the lower part of the subsoil are significant limitations to urban development, but these limitations can be partially overcome or modified by special planning, design, or maintenance. Capability subclass IIe; ordination symbol 2o.

Dn—Dunbar fine sandy loam. This deep, somewhat poorly drained, nearly level soil is in broad, flat, low areas of uplands of the Coastal Plain. Individual areas are 4 to 100 acres.

Typically, the surface layer is dark grayish brown fine sandy loam to a depth of 6 inches. The subsoil is yellowish brown, firm sandy clay that has yellowish brown, yellowish red, and light brownish gray mottles between the depths of 6 and 12 inches and clay mottled in shades of gray, brown, and red between the depths of 12 and 66 inches. The underlying material between the depths of 66 and 80 inches is light gray clay that has brownish yellow and red mottles.

This soil is low in natural fertility and moderately low in content of organic matter. The surface layer is slightly acid to strongly acid. The subsoil is strongly acid or very strongly acid. Permeability is moderately slow, and available water capacity is medium. The soil generally has good tilth. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Clarendon, Persanti, Duplin, Lynchburg, and Smithboro soils. Also included are areas of soils that have a surface layer of loamy fine sand or loamy sand. Small areas of wet depressional soils are included and are shown on the map by a wet spot symbol. Included soils make up about 10 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited because of the high water table and the clayey subsoil. Tilth is maintained by returning crop residue to the soil. Wetness is a moderate hazard if cultivated crops are grown. Drainage field ditches, drainage land grading, and subsurface drainage help lower the water table. Chisel plowing and crop residue management help improve the physical condition of the soil.

This soil has good potential for loblolly pine, slash pine, sweetgum, and yellow-poplar. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is poor for urban uses. The high water table and moderately slow permeability are severe limitations to urban development (fig. 2). Capability subclass IIw; ordination symbol 2w.

DuA—Duplin fine sandy loam, 0 to 2 percent slopes. This deep, moderately well drained, nearly level soil is in broad, flat areas of uplands of the Coastal Plain. Individual areas are 5 to 75 acres.

Typically, the surface layer is dark grayish brown fine sandy loam to a depth of 8 inches. The subsoil is yellowish brown, firm clay loam between the depths of 8 and 18 inches; yellowish brown, firm clay loam mottled with yellowish brown, yellowish red, and light brownish gray between the depths of 18 and 28 inches; and mottled gray, brown, red, and yellow, very firm clay between the depths of 28 and 80 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is slightly acid to strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderately slow, and available water capacity is medium. The soil generally has good tilth. The root zone is deep, but in places plant roots cannot easily penetrate the clayey subsoil.

Included with this soil in mapping are small areas of Clarendon, Dunbar, Persanti, and Varina soils. Small areas of wet, depressional soils are included and are shown on the map by a wet spot symbol. Also included are small areas of soils that have texture and drainage similar to Duplin soils but that have horizons in which content of nodules of plinthite within 60 inches of the surface is more than 5 percent. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is somewhat limited because of a seasonal high water table and a clayey subsoil. Tilth can be maintained by returning crop residue to the soil. Wetness is a moderate hazard if cultivated crops are grown. Drainage field ditches and subsurface drainage help lower the water table. Chisel plowing, crop residue management, and minimum tillage (fig. 3) help improve the physical condition of the soil.

This soil has good potential for loblolly pine, slash pine, sweetgum, and yellow-poplar. Equipment restrictions and seedling mortality are limitations to woodland use or management.

Potential is poor for most urban uses. Depth to the water table and the clayey subsoil, which has moderately slow permeability, are limitations to urban use. Shrink-swell potential and low strength are other limitations. These limitations can be overcome by good design and careful installation procedures. The clayey subsoil has moderately slow permeability which is a severe limitation for septic tank absorption fields. This limitation can be partially overcome by increasing the size of the absorption area or by modifying the filter field itself. Capability subclass IIw; ordination symbol 2w.

FaA—Faceville loamy fine sand, 0 to 2 percent slopes. This deep, well drained, nearly level soil is in broad, smooth areas of uplands of the Coastal Plain. Individual areas are 5 to 80 acres.

Typically, the surface layer is grayish brown loamy fine sand to a depth of 7 inches. The subsoil is yellowish red sandy clay loam between the depths of 7 and 10 inches, red clay between the depths of 10 and 42 inches, and yellowish red clay that has red and yellowish brown mottles between the depths of 42 and 75 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Orangeburg, Varina, Dothan, Summerton, and Duplin soils. Some areas include small areas of soils that have slopes of more than 2 percent. Small areas of wet, depressional soils are included and shown on the map by a wet spot symbol. Included soils make up about 10 to 20 percent of this map unit.

The potential is good for row crops, small grain, hay, and pasture. Tilth is maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help improve the physical condition of the soil.

This soil has fair potential for loblolly pine, slash pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations to urban development. Capability class I; ordination symbol 3o.

FaB—Faceville loamy fine sand, 2 to 6 percent slopes. This deep, well drained, gently sloping soil is on relatively narrow ridges of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 50 acres.

Typically, the surface layer is grayish brown loamy fine sand to a depth of 7 inches. The subsoil is red sandy clay loam between the depths of 7 and 10 inches, red clay between the depths of 10 and 42 inches, and yellowish red clay that has red and yellowish brown mottles between the depths of 42 and 75 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Varina, Dothan, Summerton, and Orangeburg soils. Also included are some areas of soils that have slopes of less than 2 percent or of more than 6 percent. As much as 20 to 30 percent of the original topsoil has been eroded from some mapped areas, and in these areas the soils have a surface layer of clay loam or sandy clay loam. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Tilth is maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, cover crops, contour tillage, terraces, grassed waterways, and crop residue management help conserve moisture and control erosion.

This soil has fair potential for loblolly pine, slash pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. Most limitations are slight. Where slope is a moderate limitation, it can be easily overcome by grading or through modification of the soil. Capability subclass IIe; ordination symbol 3o.

FuB—Fuquay sand, 0 to 6 percent slopes. This deep, well drained, nearly level and gently sloping soil is on broad, smooth ridges and narrow slopes parallel to streams and drainageways of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 2 to 100 acres.

Typically, the surface layer is dark grayish brown sand to a depth of 9 inches. The subsurface layer is very pale brown sand between the depths of 9 and 30 inches. The subsoil between the depths of 30 and 42 inches is yellowish brown sandy clay loam. Between the depths of 42 and 54 inches, it is light yellowish brown sandy clay loam that has strong brown and gray mottles and in which content of nodules of plinthite is 5 percent. Between the depths of 54 and 65 inches, it is mottled gray, red, and yellowish brown sandy clay loam in which content of nodules of plinthite is 10 percent. Between the depths of 65 and 75 inches, it is mottled gray and yellowish red sandy clay loam in which content of nodules of plinthite is 5 percent.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers are very strongly acid or medium acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low to medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Dothan, Pocalla, Blanton, and Lakeland soils. Also included are a few areas of similar soils in which content of nodules of plinthite is less than 5 percent. A few narrow areas of soils that have slopes of 6 to 10 percent and a few long, narrow areas of wet alluvial soils are included. Some mapped areas include small, wet depressional soils that are shown on the map by a wet spot symbol. Included soils make up about 20 to 30 percent of this map unit.

Potential is fair for row crops and small grain. Potential is limited because the soil is slightly droughty during periods of low rainfall. Soil blowing is a hazard on some of the larger fields. The soil has good potential for improved bermudagrass, hay, and pasture. Tilth is maintained by returning crop residue to the soil. Stripcropping and field windbreaks help control soil blowing. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help conserve moisture, control soil blowing, and improve the physical condition of the soil.

This soil has fair potential for loblolly pine, slash pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is good for most urban uses. The slow permeability in the lower part of the subsoil and the perched water table above the layer containing nodules of plinthite are limitations for septic tank absorption fields, but this limitation can be partially overcome by increasing the size of the absorption area or by modifying the filter field itself. Capability subclass IIs; ordination symbol 3s.

FuC—Fuquay sand, 6 to 10 percent slopes. This deep, well drained, sloping soil is on narrow slopes parallel to streams and drainageways of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 15 acres.

Typically, the surface layer is dark grayish brown sand to a depth of 9 inches. The subsurface layer is very pale brown sand between the depths of 9 and 30 inches. The subsoil between the depths of 30 and 42 inches is yellowish brown sandy clay loam. Between the depths of 42 and 54 inches, it is light yellowish brown sandy clay loam that has strong brown and gray mottles and in which content of nodules of plinthite is 5 percent. Between the depths of 54 and 65 inches, it is mottled gray, red, and yellowish brown sandy clay loam in which content of nodules of plinthite is 10 percent. Between the depths of 65 and 75 inches, it is mottled gray and yellowish red sandy clay loam in which content of nodules of plinthite is 5 percent.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers are very strongly acid or medium acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low to medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Dothan, Summerton, Blanton, and Lakeland soils. Also included are a few areas of similar soils in which plinthite content is less than 5 percent. A few long, narrow areas of wet alluvial soils are included in some mapped areas, and small areas of soils that have slopes of 2 to 6 percent or of 10 to 15 percent are also included. Included soils make up about 10 to 20 percent of this map unit.

Potential is fair for row crops and small grain. Potential is limited because of slope, size of the areas, and droughtiness. The soil is slightly droughty during periods of low rainfall. It has good potential for improved bermudagrass, hay, and pasture. Tilth is maintained by returning crop residue to the soil. Soil blowing is a moderate hazard if cultivated crops are grown. Minimum tillage, parallel terraces, grassed waterways, contour farming, and crop residue management help conserve organic matter and moisture and prevent soil blowing.

The soil has fair potential for loblolly pine, slash pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is fair for most urban uses. Slope, slow permeability in the lower part of the subsoil, and the perched water table above the layer containing nodules of plinthite are moderate limitations for septic tank absorption fields. This can be overcome by special planning or design or by increasing the size of the filter field itself. Capability subclass IIIs; ordination symbol 3s.

Jo—Johns loamy sand. This deep, somewhat poorly drained to moderately well drained, nearly level soil is on stream terraces of the Coastal Plain. Individual areas are 5 to 50 acres.

Typically, the surface layer is very dark gray loamy sand to a depth of 9 inches. The subsurface layer is light yellowish brown loamy sand between the depths of 9 and 17 inches. The subsoil is yellowish brown sandy clay loam that has yellow, brown, and gray mottles between the depths of 17 and 35 inches, and light gray and brownish yellow sandy loam between the depths of 35 and 38 inches. The underlying material is light gray sand that has brownish yellow mottles between the depths of 38 and 80 inches.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers are medium acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Tilth is generally good. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lumbee, Persanti, Smithboro, and Chipley soils. Also included are a few areas of soils that have a sandy surface layer 20 to 30 inches thick. Small areas of wet, depressional soils are included and are shown on the map by a wet spot symbol. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Wetness is a hazard if cultivated crops are grown because of depth to the water table and rare flooding. Tilth is maintained by returning crop residue to the soil. Drainage field ditches, diversion ditches, subsurface drainage, and dikes help reduce crop losses from flooding and drowning.

This soil has good potential for loblolly pine and slash pine. Moderate equipment restrictions are limitations to woodland use or management.

Potential is poor for urban use. Wetness and rare flooding are severe limitations. Capability subclass IIw; ordination symbol 2w.

JR—Johnston-Rutlege association, frequently flooded. This association consists of very poorly drained soils in a regular and repeating pattern. The soils are nearly level and are on flood plains along the Little Pee Dee and Lumber Rivers. Johnston soils are in the wetter sloughs, and Rutlege soils are in broad and narrow, flat areas. These soils formed in sandy and loamy, stratified fluvial or marine sediments. The areas are 500 to 5,000 feet wide. Individual areas of each soil range from 5 to 500 acres.

The very poorly drained Johnston soils make up about 40 percent of the association. Typically, the surface layer is black and very dark gray loam and fine sandy loam to a depth of 40 inches. The underlying material between the depths of 40 and 65 inches is light brownish gray loamy sand.

Johnston soils have moderately rapid permeability in the surface layer and rapid permeability in the underlying material. Available water capacity is medium. The soil is strongly acid or very strongly acid throughout.

The very poorly drained Rutlege soils make up about 35 percent of the association. Typically, the surface layer is black loamy sand to a depth of 10 inches. The underlying material is dark gray sand between the depths of 10 and 18 inches, gray sand between the depths of 18 and 50 inches, and light brownish gray sand between the depths of 50 and 80 inches.

Rutlege soils have rapid permeability and low available water capacity. The soil is very strongly acid or extremely acid throughout.

Included with these soils in mapping are a few small areas of the poorly drained Leon and Lumbee soils on the remnants of old river terraces. Also included are a few areas of the very poorly drained Paxville soils on similar landscapes; these soils formed in sandy or loamy, fluvial or marine sediments. Included soils make up about 25 percent of this map unit.

Most areas of this association are wooded and consist of a mixture of hardwoods and pines. Potential for trees is good, especially for loblolly pine, sweetgum, and water oak. Wetness is a severe limitation in managing and harvesting the tree crop, but this limitation can be overcome by using special equipment and by logging during the drier seasons. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

This association has poor potential for farming and urban use. Wetness and frequent flooding are severe limitations that can be overcome only by major flood control and drainage measures. Capability subclass VIIw; Johnston part has ordination symbol 1w, Rutlege part has ordination symbol 2w.

KnB—Kenansville sand, 0 to 4 percent slopes. This deep, well drained, nearly level to gently sloping soil is on the higher elevations of stream terraces. Slopes are smooth. Individual areas are 5 to 40 acres.

Typically, the surface layer is dark grayish brown sand to a depth of 8 inches. The subsurface layer is pale brown sand between the depths of 8 and 24 inches. The subsoil is yellowish brown sandy loam between the depths of 24 and 36 inches and brownish yellow loamy sand between the depths of 36 and 46 inches. The underlying material is brownish yellow and light yellowish brown sand that has light gray mottles between the depths of 46 and 72 inches.

This soil is low in natural fertility and content of organic matter. It is medium acid to very strongly acid throughout. Permeability is moderately rapid, and available water capacity is low. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lakeland, Fuquay, Brogdon, Chipley, and Blanton soils. Also included are small, wet areas of soils that are shown on the map by a wet spot symbol. A few areas of included soils have slopes of more than 4 percent. Included soils make up about 10 to 20 percent of this map unit.

Potential is fair for row crops (fig. 4) and small grain. Potential is limited because of droughtiness. The soil has good potential for Coastal bermudagrass, hay, and pasture. Tilth is maintained by returning crop residue to the soil. Soil blowing and droughtiness are moderate hazards if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes, in the cropping system; stripcropping; windbreaks; crop residue management; irrigation; and pasture and hayland management help conserve moisture and reduce soil blowing.

This soil has fair potential for loblolly pine and slash pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is good for most urban uses. Sand content and the caving of shallow excavations are moderate limitations, but these limitations can be easily overcome by good design and careful installation procedures. Capability subclass IIs; ordination symbol 3s.

LaB—Lakeland sand, 0 to 6 percent slopes. This deep, excessively drained, nearly level to gently sloping soil is on broad, smooth ridges and narrow, irregular slopes parallel to streams and drainageways of stream terraces and on uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 200 acres.

Typically, the surface layer is dark brown sand to a depth of 8 inches. The underlying material is brownish yellow sand between the depths of 8 and 22 inches, strong brown sand between the depths of 22 and 50 inches, reddish yellow sand between the depths of 50 and 61 inches, and very pale brown sand between the depths of 61 and 89 inches.

This soil is low in natural fertility and content of organic matter. It is medium acid to very strongly acid. Permeability is very rapid, and available water capacity is low. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Blanton, Kenansville, Pocalla, Lucy, Chipley, and Fuquay soils. Some areas mapped as this soil include slightly depressional areas of wetter soils, which are shown on the map by a wet spot symbol. A few areas of included soils have slopes of 6 to 8 percent. Also included are areas of soils that are light gray to white and that are mottled with brown below a depth of about 45 inches. Included soils make up about 10 to 20 percent of this map unit.

Potential is poor for row crops and small grain. Potential is limited because of the sandy texture and low available water capacity. The soil has good potential for Coastal bermudagrass, hay, and pasture. Droughtiness and low nutrient holding capacity are severe hazards if cultivated crops are grown. Irrigation, split applications of fertilizer, crop residue management, minimum tillage, field windbreaks, and stripcropping help conserve moisture, improve nutrient holding capacity, and reduce soil blowing on large fields.

This soil has fair potential for loblolly pine, slash pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

This soil has good potential for most urban and recreation uses (fig. 5). Caving of shallow excavations is a limitation that can be overcome by good design and careful installation procedures. Capability subclass IVs; ordination symbol 4s.

LaC—Lakeland sand, 6 to 10 percent slopes. This deep, excessively drained, sloping soil is on narrow, irregular slopes parallel to streams and drainageways. Slopes are predominantly convex. Individual areas are 2 to 20 acres.

Typically, the surface layer is dark brown sand to a depth of 8 inches. The underlying material is brownish yellow sand between the depths of 8 and 22 inches, strong brown sand between the depths of 22 and 50 inches, reddish yellow sand between the depths of 50 and 61 inches, and very pale brown sand between the depths of 61 and 89 inches.

This soil is low in natural fertility and content of organic matter. It is medium acid to very strongly acid throughout the profile. Permeability is very rapid, and available water capacity is low. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Blanton, Fuquay, Summerton, and Lucy soils. Also included are long, narrow areas of Rutlege and Osier soils along drainageways or small streams. A few areas of included soils have slopes of 10 to 15 percent. Included soils make up about 10 to 20 percent of this map unit.

Potential is poor for row crops and small grain because of slope, size of areas, droughtiness, and low available water capacity. The soil has good potential for improved bermudagrass, hay, and pasture. Soil blowing, droughtiness, and low nutrient holding capacity are severe hazards. Irrigation, split applications of fertilizer, and crop residue management help reduce soil blowing, conserve moisture, and improve nutrient holding capacity.

This soil has fair potential for loblolly pine, slash pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is good for most urban uses. Slope and caving of excavations are limitations that can be overcome by good design and careful installation procedures. Capability subclass VIs; ordination symbol 4s.

LbA—Leon sand, 0 to 2 percent slopes. This deep, poorly drained, nearly level soil is in broad, flat areas of flatwoods and river terraces of the Coastal Plain. Individual areas are 5 to 200 acres.

Typically, the surface layer is black sand to a depth of 6 inches. The subsurface layer is light gray sand between the depths of 6 and 20 inches. The subsoil is weakly cemented, black sand between the depths of 20 and 60 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid to extremely acid throughout the profile. Permeability is rapid in the surface and subsurface layers and moderate to moderately rapid in the subsoil. Available water capacity is low. Tilth is good. The root zone is deep, but in places the subsoil somewhat restricts plant roots.

Included with this soil in mapping are small areas of Rutlege, Osier, Lynn Haven, and Chipley soils. Some areas of this soil have a weakly cemented, black layer directly beneath the surface horizon, and some areas of this soil have a surface layer of loamy sand. Included soils make up about 10 to 20 percent of this map unit.

Potential is poor for row crops and small grain. Potential is limited because of a high water table. The soil has fair potential for hay and pasture. Tilth can be maintained by returning crop residue to the soil. Wetness is a severe hazard if cultivated crops are grown. Drainage field ditches and subsurface drainage help lower the water table.

This soil has fair potential for slash pine and longleaf pine. Equipment restrictions, seedling mortality, windthrow hazard, and plant competition are moderate limitations to woodland use and management.

Potential is poor for urban development because of wetness. Capability subclass IVw; ordination symbol 4w.

LcB—Lucy sand, 2 to 6 percent slopes. This deep, well drained, gently sloping soil is on broad, smooth ridges of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 100 acres.

Typically, the surface layer is brown sand to a depth of 8 inches. The subsurface layer is brownish yellow sand between the depths of 8 and 26 inches. The subsoil is red sandy clay loam between the depths of 26 and 72 inches.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers are acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate. Available water capacity is low in the upper horizons and medium in the lower horizons. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Fuquay, Orangeburg, Blanton, and Dothan soils. Small areas of wet, depressional soils are included and are shown on the map by a wet spot symbol. Also included are a few areas of soils, on the side slopes parallel to Hayes Swamp, that have slopes of more than 6 percent. Included soils make up about 10 to 20 percent of this map unit.

Potential is fair for row crops and small grain. Potential is limited because of droughtiness of the soil. The soil has good potential for Coastal bermudagrass, hay, or pasture. Tilth is maintained by returning crop residue to the soil. Soil blowing is a moderate hazard on large fields if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes, in the cropping system; and field windbreaks help conserve moisture and reduce soil blowing.

This soil has fair potential for loblolly pine, slash pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations to urban development. Capability subclass IIs; ordination symbol 3s.

Lm—Lumbee sandy loam. This deep, poorly drained, nearly level soil is on stream terraces of the Coastal Plain. Individual areas are 5 to 150 acres.

Typically, the surface layer is black sandy loam to a depth of about 6 inches. The subsurface layer, between the depths of 6 and 12 inches, is gray sandy loam. The subsoil is gray sandy clay loam that has mottles of yellowish brown, brown, and dark gray between the depths of 12 and 32 inches and grayish brown sandy loam between the depths of 32 and 37 inches. The underlying material between the depths of 37 and 75 inches is light brownish gray sand.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid to very strongly acid, and the subsoil and underlying horizons are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Tilth is generally good. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Chipley, Johns, Paxville, and Rutlege soils. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Wetness because of the high water table, rare flooding, and ponding are severe hazards if cultivated crops are grown. Tilth is maintained by returning crop residue to the soil. Drainage field ditches, subsurface drainage, and dikes help lower the water table and reduce flooding and ponding.

This soil has good potential for slash pine, loblolly pine, water tupelo, and sweetgum. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban development because of wetness and the flooding hazard. Capability subclass IIIw; ordination symbol 2w.

Ln—Lynchburg sandy loam. This deep, somewhat poorly drained, nearly level soil is in low lying areas, generally shallow depressional areas or broad, interstream divides of uplands of the Coastal Plain. Individual areas are 3 to 100 acres.

Typically, the surface layer is very dark gray sandy loam to a depth of 7 inches. The subsoil is pale brown sandy clay loam that has yellowish brown and light brownish gray mottles between the depths of 7 and 12 inches; gray sandy clay loam that has yellowish brown, pale brown, and yellowish red mottles between the depths of 12 and 55 inches; and gray sandy clay that has yellowish brown and yellowish red mottles between the depths of 55 and 72 inches.

This soil is low in natural fertility and medium in content of organic matter. The surface layer is slightly acid to strongly acid, and the subsoil is strongly acid to extremely acid. Permeability is moderate, and available water capacity is medium. The soil generally has good tilth. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Clarendon, Dunbar, Chipley, and Johns soils. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited because of the high water table. Tilth is maintained by returning crop residue to the soil. Wetness is a severe hazard if cultivated crops are grown. Drainage field ditches, drainage land grading, and subsurface drainage help lower the water table. Crop residue management and chisel plowing help improve the physical condition of the soil.

This soil has good potential for slash pine, longleaf pine, yellow-poplar, and sweetgum. Equipment restrictions are a moderate limitation to woodland use or management.

Potential is poor for urban uses because of wetness. Capability subclass IIw; ordination symbol 2w.

Ly—Lynn Haven sand. This deep, poorly drained, nearly level soil is in broad, flat areas of flatwoods of the Coastal Plain and on river terraces. Individual areas are 5 to 400 acres.

Typically, the surface layer is black sand to a depth of 13 inches. The subsurface layer is light gray sand between the depths of 13 and 18 inches. The subsoil is weakly cemented, dark reddish brown sand between the depths of 18 and 32 inches; weakly cemented, black sand between the depths of 32 and 48 inches; and dark brown sand between the depths of 48 and 65 inches. The underlying material is gray and between the depths of 65 and 80 inches.

This soil is low in natural fertility and moderate in content of organic matter. It is strongly acid or very strongly acid throughout. Permeability is moderate or moderately rapid, and available water capacity is low to very low. Tilth is fair. The root zone is deep, but in places the weakly cemented subsoil layer somewhat restricts root development.

Included with this soil in mapping are small areas of Rutlege, Paxville, Osier, and Leon soils. Also included are a few areas of soils that have a dark colored, slightly cemented layer directly beneath the surface layer; a few areas of these soils have a layer of sandy loam or sandy clay loam beneath the slightly cemented layer. Some areas have a surface layer of loamy sand. Included soils make up about 10 to 20 percent of this map unit.

Potential is fair for row crops, pasture grasses, and truck crops such as Irish potatoes and cabbage. Potential is limited because of the high water table. Tilth can be improved by returning crop residue to the soil. Wetness is a severe hazard if cultivated crops are grown. Drainage field ditches, drainage land grading, diversion ditches, and subsurface drainage help lower the water table.

This soil has fair potential for slash pine and loblolly pine. Equipment restrictions, seedling mortality, and plant competition are moderate limitations to woodland use or management.

Potential is poor for urban development because of wetness. Capability subclass IVw; ordination symbol 4w.

Mc—McColl loam. This deep, poorly drained, nearly level soil is in oval, depressional areas of uplands of the Coastal Plain. Individual areas are 5 to 75 acres.

Typically, the surface layer is black loam to a depth of 7 inches. The subsoil is light brownish gray clay between the depths of 7 and 14 inches; mottled strong brown, brittle sandy clay loam and sandy clay between the depths of 14 and 40 inches; and mottled strong brown sandy clay loam between the depths of 40 and 56 inches. The underlying material is strong brown and light gray, mottled sandy loam between the depths of 56 and 80 inches.

This soil is low in natural fertility and moderate in content of organic matter. The surface layer is medium acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is slow, and available water capacity is medium to low. Tilth is generally fair on this soil, but the soil is cloddy if plowed when wet. The root zone is moderately deep. The brittle subsoil layer restricts root development.

Included with this soil in mapping are small areas of Coxville and Rains soils. A few areas of included soils do not have a brittle layer. Included soils make up about 10 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited by a high water table, common flooding, and the moderately deep root zone. Tilth can be maintained by returning crop residue to the soil. Wetness and flooding are severe hazards if cultivated crops are grown. Drainage field ditches, drainage land grading, crop residue management, and chisel plowing help lower the water table and improve the physical condition of the soil.

This soil has good potential for loblolly pine, slash pine, sweetgum, baldcypress, and water tupelo. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban uses because of wetness and flooding. Capability subclass IIIw; ordination symbol 2w.

OrA—Orangeburg loamy sand, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on broad, smooth ridges of uplands of the Coastal Plain. Individual areas are 5 to 50 acres.

Typically, the surface layer is brown loamy sand to a depth of 8 inches. The subsurface layer is light yellowish brown loamy sand between the depths of 8 and 12 inches. The subsoil is yellowish red sandy clay loam between the depths of 12 and 36 inches, yellowish red sandy clay loam that has strong brown and red mottles between the depths of 36 and 50 inches, strong brown sandy clay loam that has yellowish red and red mottles between the depths of 50 and 66 inches, and mottled yellowish red and strong brown sandy clay loam between the depths of 66 and 74 inches.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers range from slightly acid to strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this map soil in mapping are small areas of Lucy, Faceville, Dothan, Clarendon, and Varina soils. Long, narrow areas of soils that have slopes of more than 2 percent are included in some mapped areas. Small, wet depressional areas of poorly drained soils are included and are shown on the map by a wet spot symbol. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Tilth is maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help build up organic matter and conserve moisture.

This soil has good potential for slash pine, loblolly pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations. Capability class I; ordination symbol 2o.

OrB—Orangeburg loamy sand, 2 to 6 percent slopes. This deep, well drained, gently sloping soil is on broad, smooth ridges and narrow slopes parallel to streams and drainageways of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 50 acres.

Typically, the surface layer is brown loamy sand to a depth of 8 inches. The subsurface layer is light yellowish brown loamy sand between the depths of 8 and 12 inches. The subsoil is yellowish red sandy clay loam between the depths of 12 and 36 inches, yellowish red sandy clay loam that has strong brown and red mottles between the depths of 36 and 50 inches, strong brown sandy clay loam that has yellowish red and red mottles between the depths of 50 and 66 inches, and mottled yellowish red and strong brown sandy clay loam between the depths of 66 and 74 inches.

This soil is low in natural fertility and content of organic matter. The surface and subsurface layers range from slightly acid to strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Fuquay, Dothan, Varina, Faceville, and Summerton soils. Also included are a few small areas of soils that have slopes of less than 2 percent or of more than 6 percent. Small, depressional areas of poorly drained soils are included and are shown on the map by a wet spot symbol. Also included are small areas of soils that have a surface layer of sandy clay loam. Included soils make up about 10 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is somewhat limited because of slope. Tilth is maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, crop residue management, contour tillage, terraces, and grassed waterways help reduce runoff and control erosion.

This soil has good potential for slash pine, loblolly pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations. Capability subclass IIe; ordination symbol 2o.

Os—Osier loamy sand. This deep, poorly drained, nearly level soil is in low wet areas at the heads of streams, along drainageways, and in oval, depressional areas of the river flood plain and uplands. Individual areas are 3 to 60 acres.

Typically, the surface layer is very dark gray loamy sand to a depth of 5 inches. The underlying material is sand that extends to a depth of 70 inches. It is grayish brown between the depths of 5 and 18 inches and gray between the depths of 18 and 70 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid to very strongly acid, and the underlying material is strongly acid to very strongly acid. Permeability is rapid, and available water capacity is very low. Tilth is generally good. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Rutlege, Pantego, Rains, Lumbee, and Leon soils. Also included are a few areas of soils that have a brittle layer at a depth of 40 to 60 inches. Included soils make up about 10 to 20 percent of this map unit.

Potential is poor for row crops, hay, and pasture. Potential is limited because of a high water table and flooding. Tilth can be maintained by returning crop residue to the soil. Wetness and common flooding for brief periods are severe hazards if cultivated crops are grown. Extensive drainage systems, dikes, and bedding help lower the water table and reduce crop loss from wetness and flooding.

This soil has fair potential for slash pine, loblolly pine, and longleaf pine. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban uses because of wetness and flooding. Capability subclass Vw; ordination symbol 3w.

Pa—Pantego loam. This deep, very poorly drained, nearly level soil is in slightly depressional areas and at the heads of streams in the uplands of the Coastal Plain. Individual areas are 5 to 1,000 acres.

Typically, the surface layer is black loam to a depth of 12 inches. The upper part of the subsoil is sandy clay loam. It is dark gray and has brown mottles between the depths of 12 and 29 inches, and it is gray and has brownish yellow mottles between the depths of 29 and 55 inches. The lower part of the subsoil is gray sandy clay. It is mottled with brownish yellow between the depths of 55 and 67 inches, and it is mottled with light gray between the depths of 67 and 75 inches.

This soil is low in natural fertility and high in content of organic matter. The surface layer is strongly acid or very strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium to high. Tilth is generally good. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Rains, Coxville, Rutlege, and Paxville soils. Also included are small areas of soils that have a surface layer or subsoil layers of sandy loam. A few small areas of included soils have a surface layer more than 20 inches thick. Included soils make up about 15 to 25 percent of this unit.

Potential is good for row crops, hay, and pasture. Wetness is a severe hazard if cultivated crops are grown because of the high water table and ponding. Tilth can be maintained by returning crop residue to the soil. Drainage field ditches, diversion ditches, floodwater diversions, and floodways help lower the water table and reduce ponding.

This soil has good potential for loblolly pine, slash pine, water oak, and sweetgum. Bedding helps establish a stand

of pine trees on this soil. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban uses because of wetness. Capability subclass IIIw; ordination symbol 1w.

Pb—Paxville loam. This deep, very poorly drained, nearly level soil is on stream terraces and in slightly depressional areas of the Coastal Plain. Individual areas are 5 to 500 acres.

Typically, the surface layer is black loam to a depth of 13 inches. The subsoil is dark gray sandy loam between the depths of 13 and 16 inches, gray sandy clay loam that has yellowish brown mottles between the depths of 16 and 25 inches, light gray sandy clay loam that has yellowish brown mottles between the depths of 25 and 42 inches, and gray sandy loam that has light gray mottles between the depths of 42 and 48 inches. The underlying material is gray, light gray, and grayish brown sand between the depths of 48 and 80 inches.

This soil is low in natural fertility and high in content of organic matter. The surface layer is medium acid to very strongly acid, and the subsoil and underlying layers are strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. Tilth is generally good. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lumbee, Johns, Rutlege, Johnston, and Chipley soils. Also included are a few areas of soils that have sand at a depth of less than 40 inches. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for row crops, hay, and pasture. Wetness is a severe hazard if cultivated crops are grown because of the high water table, rare flooding, and ponding. Tilth is maintained by returning crop residue to the soil. Drainage field ditches, diversion ditches, floodwater diversions, and floodways help lower the water table and reduce loss from flooding and ponding.

This soil has good potential for loblolly pine, slash pine, water oak, and water tupelo. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

This soil has poor potential for urban development because of flooding and wetness. Capability subclass IIIw; ordination symbol 1w.

PeA—Persanti fine sandy loam, 0 to 2 percent slopes. This deep, moderately well drained, nearly level soil is on broad, smooth ridges of old stream terraces and uplands of the Coastal Plain. Individual areas are 5 to 700 acres.

Typically, the surface layer is brown fine sandy loam to a depth of 6 inches. The subsoil is yellowish brown clay loam, silty clay loam, and clay that has few to common mottles of red, brown, and gray between the depths of 6 and 31 inches, and mottled gray, brown, and red clay and silty clay between the depths of 31 and 80 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is slightly acid to strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is slow, and available water capacity is medium. Tilth is fairly good. The root zone is deep, but in places the clayey subsoil slightly limits the development of plant roots.

Included with this soil in mapping are small areas of Varina, Summerton, Duplin, Dunbar, and Smithboro soils. Also included are small, depressional areas of poorly drained soils that are shown on the map by a wet spot symbol. Small areas of soils that have slopes of more than 2 percent are included. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is somewhat limited because of the clayey subsoil, which has slow permeability. Tilth is easily maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system also help maintain favorable tilth of the surface layer.

This soil has good potential for loblolly pine, slash pine, sweetgum, and yellow-poplar. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is poor for most urban uses. Slow permeability, wetness, the clayey subsoil, shrink-swell potential, and low strength are severe limitations. These limitations can be overcome or modified by special planning, design, or maintenance. Capability subclass IIw; ordination symbol 2w.

PeB—Persanti fine sandy loam, 2 to 6 percent slopes. This deep, moderately well drained, gently sloping soil is on relatively narrow slopes of old stream terraces and on uplands of the Coastal Plain. Individual areas are 5 to 100 acres.

Typically, the surface layer is brown fine sandy loam to a depth of 6 inches. The subsoil is yellowish brown clay loam, silty clay loam, and clay that has few to common mottles of red, brown, and gray between the depths of 6 and 31 inches, and mottled gray, brown, and red clay and silty clay between the depths of 31 and 80 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is slightly acid to strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is slow, and available water capacity is medium. Tilth is fairly good except on the included soils that have a surface layer of sandy clay loam. In these areas tilth is poor. The root zone is deep, but in places the clayey subsoil slightly limits the development of plant roots.

Included with this soil in mapping are small areas of Varina, Summerton, and Dothan soils. Some mapped areas include small areas of soils that have slopes of less than 2 percent or of more than 6 percent. Some mapped areas include small areas of eroded soils that have a surface layer of sandy clay loam. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited because of slope and slow permeability. Tilth is maintained by returning crop

residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour farming, crop residue management, terraces, and grassed waterways help reduce runoff and control erosion.

This soil has good potential for loblolly pine, slash pine, sweetgum, and yellow-poplar. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is poor for most urban uses. Slow permeability, wetness, the clayey subsoil, shrink-swell potential, and low strength are severe limitations. These limitations can be overcome or modified by special planning, design, or maintenance. Capability subclass IIe; ordination symbol 2w.

PoA—Pocalla sand, 0 to 2 percent slopes. This deep, somewhat excessively drained, nearly level soil is on broad ridges of uplands of the Coastal Plain. Individual areas are 5 to 50 acres.

Typically, the surface layer is dark grayish brown sand to a depth of 8 inches. The subsurface layer is pale brown sand that has dark yellowish brown stains along root channels and that extends between the depths of 8 and 28 inches. The upper part of the subsoil is yellowish brown sandy loam between the depths of 28 and 38 inches and brownish yellow loamy sand between the depths of 38 and 48 inches. The next layer is brownish yellow sand that has pockets of white sand between the depths of 48 and 56 inches. The lower part of the subsoil is sandy clay loam that extends to a depth of 80 inches, and content of nodules of plinthite is 10 to 20 percent, by volume. This layer is brownish yellow and has strong brown and pale brown mottles between the depths of 56 and 66 inches and is light yellowish brown and has gray and strong brown mottles between the depths of 66 and 80 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately rapid in the upper part of the subsoil and moderate in the lower part. Available water capacity is low to medium. The soil can be worked throughout a wide range of moisture conditions. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Brogdon, Fuquay, Blanton, and Lakeland soils. Some mapped areas include small depressional areas of poorly drained soils that are shown on the map by a wet spot symbol. Included soils make up about 10 to 20 percent of this map unit.

Potential is fair for row crops, small grain, hay, and pasture. Potential is limited because the soil is slightly droughty. Soil blowing is a hazard on some of the larger fields if cultivated crops are grown. Tilth is maintained by returning crop residue to the soil. Stripcropping, field windbreaks, and minimum tillage help control soil blowing. Crop residue management; cover crops, including grasses and legumes, in the cropping system; and pasture and hayland management help conserve moisture and control soil blowing.

This soil has fair potential for slash pine, loblolly pine, and longleaf pine. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

Potential is good for most urban uses. There are no significant limitations to urban development. Capability subclass IIs; ordination symbol 3s.

PZ—Ponzer soils. This map unit consists of deep, very poorly drained, nearly level soils in low, depressional areas along Catfish Canal and the Little Pee Dee and Lumber Rivers, and also in some of the larger, oval depressions, or "Carolina bays." This unit was mapped at a lower intensity than most other units in this survey; all the soils in the map unit are similar enough that separating them on a map was not important for the objective of this survey.

A typical area of this map unit is about 70 percent Ponzer soils; 15 percent soils that are similar to Ponzer soils except that they have a thin brittle layer in the mineral layer; about 10 percent Pantego, Byars, Rutlege, and Lynn Haven soils; and about 5 percent other soils that have either an organic surface layer thinner than 16 inches or organic material underlain by sand. In places a layer of sand about 10 inches thick is between the organic layer and the finer textured mineral layer.

Typically, Ponzer soils have a surface layer of very dark grayish brown and black muck to a depth of 28 inches. The underlying material is very dark grayish brown clay loam between the depths of 28 and 48 inches, and is grayish brown sand between the depths of 48 and 72 inches.

Ponzer soils are very high in content of organic matter. They have organic layers that are extremely acid throughout except in limed areas, and mineral layers that are strongly acid or very strongly acid. Permeability is moderately slow, and available water capacity is medium. Ponding or frequent flooding occurs from November to June.

This map unit is dominantly used as cropland. It has good potential for corn and soybeans. Extensive drainage and reclamation are necessary for crop production. Subsidence of the organic matter generally takes place within 2 or 3 years after drainage.

This map unit has fair potential for slash pine, loblolly pine, baldcypress, and water tupelo. Equipment restrictions and seedling mortality are severe limitations to woodland use and management. Wetness is the main limitation in managing and harvesting the tree crop.

Potential is poor for urban uses because of wetness and flooding. Capability subclass IVw; ordination symbol 4w.

Ra—Rains fine sandy loam. This deep, poorly drained, nearly level soil is in broad, flat areas; in slightly depressional areas; in oval bays; and along the heads of drainageways in the Coastal Plain. Individual areas are 5 to 100 acres.

Typically, the surface layer is dark grayish brown fine sandy loam to a depth of 7 inches. The subsoil is gray sandy clay loam that has mottles in shades of brown, yellow, and red between the depths of 7 and 80 inches.

This soil is low in natural fertility and moderate in content of organic matter. The surface layer is medium acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate, and available water capacity is medium. The soil generally has fair tilth and can be worked when moisture conditions are favorable. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Lynchburg, Coxville, Osier, Pantego, and Rutlege soils. Included soils make up about 10 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited because of a seasonal high water table and the rare flooding hazard. Tilth can be maintained by returning crop residue to the soil. Wetness and flooding are severe hazards if cultivated crops are grown. Tile drainage, field ditches, and diversion ditches help lower the water table and divert water from the area.

This soil has good potential for slash pine, loblolly pine, and sweetgum. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban uses because of wetness. Capability subclass IIIw; ordination symbol 2w.

RnB—Rimini sand, 0 to 6 percent slopes. This deep, excessively drained, nearly level to gently sloping soil is on rims around "Carolina bays" and on narrow, smooth divides along the flood plains of the Little Pee Dee and Lumber Rivers. Slopes are smooth and complex. Individual areas are 3 to 25 acres.

Typically, the surface layer is dark gray sand to a depth of 5 inches. The subsurface layer is white sand between the depths of 5 and 60 inches. The upper part of the subsoil is dark brown sand that has dark reddish brown mottles. It is slightly brittle and weakly cemented and extends between the depths of 60 and 72 inches. The lower part is brown sand that has a few black spheroidal bodies between the depths of 72 and 80 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid to extremely acid throughout the profile. Permeability is moderate, and available water capacity is very low.

Included with this soil in mapping are small areas of Lakeland, Chipley, and Leon soils. Also included are a few areas of soils that have a weakly cemented layer 40 to 50 inches below the surface. Also included are a few areas of soils that do not have a continuous, weakly cemented layer. Included soils make up about 10 to 20 percent of this map unit.

Potential is poor for row crops, as woodland, and for urban use. Potential is limited because of the size and location of the areas and because of the sandy, loose, unstable nature of the soil, which is similar to dunes or windblown deposits. Native vegetation is blackjack and turkey oaks and a few longleaf pines (fig. 6). Capability subclass VIs; ordination symbol 5s.

Ru—Rutlege loamy sand. This deep, very poorly drained, nearly level soil is on upland flats bordering small streams and drainageways, in shallow depressions and oval bays, and on the flood plains of the Little Pee Dee and Lumber Rivers. Individual areas are 3 to 300 acres.

Typically, the surface layer is black loamy sand to a depth of 10 inches. The underlying material is dark gray sand between the depths of 10 and 18 inches, gray sand between the depths of 18 and 50 inches, and light brownish gray sand between the depths of 50 and 80 inches.

This soil is low in natural fertility and high in content of organic mater. It is very strongly acid or extremely acid throughout. Permeability is rapid, and available water capacity is low.

Included with this soil in mapping are small areas of Osier, Pantego, Paxville, Lynn Haven, and Leon soils. A few small areas of soils that are sandy loam in the underlying layer are included. Included soils make up about 15 to 25 percent of this map unit.

Potential is poor for row crops and small grain. Potential is limited because of the high water table, common flooding, and ponding. The soil has fair potential for hay and pasture. Wetness and flooding are severe hazards if cultivated crops are grown. Intensive drainage, dikes, fill material, and land grading help lower the water table and reduce flooding and ponding.

This soil has good potential for timber production. Equipment restrictions and seedling mortality are severe limitations to woodland use or management.

Potential is poor for urban uses because of wetness and flooding. Capability subclass VIw; ordination symbol 2w.

Sm—Smithboro loam. This deep, somewhat poorly drained, nearly level soil is on broad, flat areas of the terrace of the Great Pee Dee River and on uplands of the Coastal Plain. Individual areas are 5 to 500 acres.

Typically, the surface layer is dark grayish brown loam to a depth of 7 inches. The subsoil is pale brown, firm clay loam that has yellowish brown and gray mottles between the depths of 7 and 13 inches; it is gray, very firm clay and clay loam that has mottles of yellowish brown and red between the depths of 13 and 75 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid to very strongly acid, and the subsoil is strongly acid to extremely acid. Permeability is slow, and available water capacity is medium to high. The soil generally has fair tilth, but tilth is readily damaged if the soil is tilled when wet. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Persanti, Duplin, Dunbar, Coxville, and Cantey soils. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited because of a high water table. Tilth is maintained by returning crop residue to the soil.

Wetness is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help improve the physical condition of the soil. Drainage field ditches and drainage land grading help lower the water table.

This soil has good potential for loblolly pine, slash pine, and sweetgum. Equipment restrictions and seedling mortality are moderate limitations to woodland use or management.

This soil has poor potential for most urban uses. The high water table, slow permeability, and the clayey subsoil are severe limitations to urban development. Capability subclass IIIw; ordination symbol 2w.

SuA—Summerton loamy fine sand, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on broad, smooth ridges of stream terraces and uplands of the Coastal Plain. Individual areas are 5 to 70 acres.

Typically, the surface layer is grayish brown loamy fine sand to a depth of 7 inches. The subsoil is dark yellowish brown clay loam that has few strong brown mottles between the depths of 7 and 15 inches, red clay that has strong brown and dark red mottles between the depths of 15 and 54 inches, and red clay mottled with strong brown, dark red, and light gray between the depths of 54 and 72 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid to slightly acid in the surface layer and strongly acid to extremely acid in the subsoil. Permeability is moderately slow, and available water capacity is medium. Tilth is generally good. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Varina, Dothan, Persanti, and Duplin soils. Small, depressional areas of Coxville, Cantey, and Smithboro soils are included and are shown on the map by a wet spot symbol. Also included are small, narrow areas of soils that have slopes of more than 2 percent and areas of soils that are strong brown throughout. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Tilth can be maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system help improve the physical condition of the soil.

This soil has fair potential for loblolly pine and slash pine. There are no significant limitations to woodland use or management.

Potential is fair for urban uses. These soils have limitations because of low strength and moderately slow permeability; these limitations can be overcome or modified by special planning, design, or maintenance. Capability class I; ordination symbol 3o.

SuB—Summerton loamy fine sand, 2 to 6 percent slopes. This deep, well drained, gently sloping soil is on relatively narrow ridges of uplands of the Coastal Plain. Individual areas are 5 to 50 acres.

Typically, the surface layer is grayish brown loamy fine sand to a depth of 7 inches. The subsoil is dark yellowish brown clay loam that has few strong brown mottles between the depths of 7 and 15 inches, red clay that has strong brown and dark red mottles between the depths of 15 and 54 inches, and red clay mottled with strong brown, dark red, and light gray between the depths of 54 and 72 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid to slightly acid in the surface layer and strongly acid to extremely acid in the subsoil. Permeability is moderately slow, and available water capacity is medium. Tilth is generally good, but the included soils that have a surface layer of sandy clay loam have poor tilth. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Varina, Dothan, and Persanti soils. Also included are areas of soils that have slopes of less than 2 percent or of more than 6 percent. Similar soils that have a surface layer of sandy clay loam make up as much as 50 percent of the area in places. Also included are areas of soils that are strong brown throughout. Included soils make up about 10 to 20 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is limited because of slope and moderately slow permeability. Tilth can be maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Contour tillage and the inclusion of sod crops in the cropping system are sufficient to control erosion on some fields. On other fields, terraces and grassed waterways are needed for control of erosion. Crop residue kept on or near the surface increases infiltration and reduces erosion. A cropping system that includes close-growing crops at least half the time helps to control erosion and reduce runoff.

This soil has fair potential for loblolly pine and slash pine. There are no significant limitations to woodland use or management.

Potential is fair for urban uses. These soils have limitations because of low strength and moderately slow permeability; these limitations can be overcome or modified by special planning, design, or maintenance. Capability subclass IIe; ordination symbol 3o.

SuC—Summerton loamy fine sand, 6 to 10 percent slopes. This deep, well drained, sloping soil is in long, narrow areas parallel to streams and drainageways of uplands of the Coastal Plain.

Typically, the surface layer is grayish brown loamy fine sand to a depth of 7 inches. The subsoil is dark yellowish brown clay loam that has few strong brown mottles between the depths of 7 and 15 inches, red clay that has strong brown and dark red mottles between the depths of 15 and 54 inches, and red clay mottled with strong brown, dark red, and light gray between the depths of 54 and 72 inches.

This soil is low in natural fertility and content of organic matter. It is strongly acid to slightly acid in the sur-

face layer and strongly acid to extremely acid in the subsoil. Permeability is moderately slow, and available water capacity is medium. Tilth is generally good on this soil, but the included soils that have a surface layer of sandy clay loam have poor tilth. The root zone is deep, but in places the clayey subsoil somewhat restricts root development.

Included with this soil in mapping are small areas of Varina, Dothan, Fuquay, Orangeburg, and Lucy soils. Also included are areas of soils that have slopes of less than 6 percent or of more than 10 percent. Similar soils that have a surface layer of sandy clay loam or clay loam make up as much as 50 percent of the area in places. Also included are areas of soils that are strong brown throughout. Included soils make up about 10 to 20 percent of this map unit.

Potential is fair for row crops and small grain. Potential is limited because of the slope and moderately slow permeability. The soil has good potential for hay and pasture. Tilth is maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage, contour tillage, terraces, grassed waterways, crop residue management, stripcropping, and a cropping system that includes grasses and legumes help reduce runoff and control erosion.

This soil has fair potential for loblolly pine and slash pine. There are no significant limitations to woodland use or management.

Potential is fair for most urban uses. These soils have limitations because of content of clay, slope, low strength, and moderately slow permeability. Most of these limitations can be overcome or modified by special planning, design, or maintenance. Capability subclass IIIe; ordination symbol 3o.

TA—Tawcaw association, frequently flooded. This association consists of deep, somewhat poorly drained soils that occur in a regular and repeating pattern. The landscape is heavily wooded areas on the flood plain of the Great Pee Dee River. Tawcaw soils are on low ridges adjacent to long, narrow, wet sloughs. These soils formed in clayey alluvial sediments on flood plains. Areas of the map unit are long and narrow, about 100 to 2,000 feet wide, and range from 125 to 750 acres in size. This unit was mapped at a lower intensity than most other soils in this survey; the intensity, however, is adequate to meet the needs for which the survey was made.

The somewhat poorly drained Tawcaw soils make up about 80 percent of the association. Typically, the surface layer is brown silty clay loam to a depth of 4 inches. The subsoil is dark brown silty clay loam between the depths of 4 and 12 inches; brown silty clay mottled with gray between the depths of 12 and 30 inches; and mottled gray, brown, and red silty clay or silty clay loam between the depths of 30 and 60 inches.

These soils are low in natural fertility and content of organic matter. They are medium acid to very strongly acid throughout the profile. Permeability is slow, and available water capacity is high. Tilth is fair. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with these soils in mapping are a few areas of well drained to moderately well drained soils on narrow ridges and knolls at slightly higher elevations. Also included are a few areas of poorly drained Chastain soils in wet sloughs at slightly lower elevations. These soils formed in loamy and clayey materials that eroded from higher lying soils. Included soils make up about 20 percent of this map unit.

Potential is good for loblolly pine, cypress, sweetgum, eastern cottonwood, sycamore, and water oak. Equipment restrictions and seedling mortality (fig. 7) are moderate limitations to managing and harvesting the tree crop. These limitations can be overcome by using special equipment and by logging during the driest season.

This unit has poor potential for farming and urban use. Wetness and common flooding are severe limitations. These limitations can be overcome only by major flood control and drainage measures. Capability subclass VIIw; ordination symbol 1w.

UD—Udorthents. This map unit consists of excavated areas that have been cut during construction of major highways, housing developments, recreation areas, and similar projects. A few large areas are the remnants of commercial sand pits or fill operations. Areas are generally about 1 acre to 40 acres in size, and range, in cut or fill material, from about 3 to 15 feet in depth. Slopes are complex, ranging from nearly level to very steep.

The material exposed in these cuts is generally sandy and very strongly acid, but texture ranges from sandy to loamy. This material is mainly the underlying material from areas of Lakeland, Fuquay, Lucy, and Dothan soils. Color is variable.

Permeability is moderate to rapid. Runoff is slow to rapid, and internal drainage is variable. Available water capacity is low, and the hazard of erosion is slight to moderate.

Included with this soil in mapping are areas of soils that do not have drainage outlets; these areas generally contain water. Also included are areas of soils that have not been appreciably altered by cutting. Included soil areas make up about 30 percent of the acreage.

Areas of this unit vary widely in their potentials and limitations for different uses. When drained, many areas are suited to slash pine, loblolly pine, and longleaf pine. The areas that have shallow cuts, gentle slopes, and sandy texture have fair potential as building sites and recreational areas because of sandiness. This unit is so variable that onsite investigation is needed to determine its potentials and limitations for any proposed use. Not assigned to a capability subclass or an ordination symbol.

VaA—Varina sandy loam, 0 to 2 percent slopes. This deep, well drained, nearly level soil is on broad, smooth ridges of uplands of the Coastal Plain. Individual areas are 5 to 250 acres.

Typically, the surface layer is brown sandy loam to a depth of 6 inches. The subsoil is yellowish brown clay loam and clay that has yellowish red mottles and nodules of plinthite between the depths of 6 and 42 inches; yellowish brown clay that has red, brown, and gray mottles and nodules of plinthite between the depths of 42 and 54 inches; and mottled brown, red, and gray clay that has nodules of plinthite between the depths of 54 and 75 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is medium. This soil generally has good tilth. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Dothan, Faceville, Persanti, Duplin, and Summerton soils. Some long, narrow areas of soils, adjacent to drainageways, that have slopes of more than 2 percent are included. Small areas of wet, depressional soils are included and are shown on the map by a wet spot symbol. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is somewhat limited because of the clayey, slowly permeable subsoil. Tilth is maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system and crop residue management help improve the physical condition of the soil.

This soil has fair potential for slash pine, loblolly pine, and longleaf pine. There are no significant limitations to woodland use or management.

This soil has good potential for most urban uses. Slow permeability is a moderate limitation for septic tank absorption fields. This limitation can be overcome by increasing the size of the absorption area or by modifying the filter field itself. Capability subclass IIs; ordination symbol 3o.

VaB—Varina sandy loam, 2 to 6 percent slopes. This deep, well drained, gently sloping soil is on broad, smooth ridges and narrow slopes of uplands of the Coastal Plain. Slopes are smooth and convex. Individual areas are 5 to 150 acres.

Typically, the surface layer is brown sandy loam to a depth of 6 inches. The subsoil is yellowish brown clay loam and clay that has yellowish red mottles and nodules of plinthite between the depths of 6 and 42 inches; yellowish brown clay that has red, brown, and gray mottles and nodules of plinthite between the depths of 42 and 54 inches; and mottled brown, red, and gray clay that has nodules of plinthite between the depths of 54 and 75 inches.

This soil is low in natural fertility and content of organic matter. The surface layer is medium acid or strongly acid, and the subsoil is strongly acid or very strongly acid. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is medium. This soil generally has good tilth; the included soils that have a surface layer of sandy clay loam or clay loam, however, are cloddy if plowed when wet. The root zone is deep, and the soil is easily penetrated by plant roots.

Included with this soil in mapping are small areas of Dothan, Persanti, and Summerton soils. A few small areas of soils that have slopes of less than 2 percent or of more than 6 percent are included. In some areas the surface layer is sandy clay loam or clay loam. A few small areas of wet, depressional soils are included and are shown on the map by a wet spot symbol. Some areas mapped as this soil include long, narrow areas, less than 200 feet wide, of wet soils along drainageways or small streams. Included soils make up about 15 to 25 percent of this map unit.

Potential is good for row crops, small grain, hay, and pasture. Potential is somewhat limited because of slope and the clayey, slowly permeable subsoil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes, in the cropping system; crop residue management; contour farming; terraces; grassed waterways; and chisel plowing help reduce runoff, control erosion, and improve the physical condition of the soil.

This soil has fair potential for slash pine, loblolly pine, and longleaf pine. There are no significant limitations to woodland use or management.

Potential is good for most urban uses. Slope and slow permeability are moderate limitations for septic tank absorption fields. These limitations can be overcome by special design or by increasing the size of the filter field. Capability subclass IIe; ordination symbol 3o.

Use and management of the soils

The soil survey is a detailed inventory and evaluation of the most basic resource of the survey area—the soil. It is useful in adjusting land use, including urbanization, to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in uses of the land.

While a soil survey is in progress, soil scientists, conservationists, engineers, and others keep extensive notes about the nature of the soils and about unique aspects of behavior of the soils. These notes include data on erosion, drought damage to specific crops, yield estimates, flooding, the functioning of septic tank disposal systems, and other factors affecting the productivity, potential, and limitations of the soils under various uses and management. In this way, field experience and measured data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section is useful in planning use and management of soils for crops and pasture, rangeland,

and woodland, as sites for buildings, highways and other transportation systems, sanitary facilities, and parks and other recreation facilities, and for wildlife habitat. From the data presented, the potential of each soil for specified land uses can be determined, soil limitations to these land uses can be identified, and costly failures in houses and other structures, caused by unfavorable soil properties, can be avoided. A site where soil properties are favorable can be selected, or practices that will overcome the soil limitations can be planned.

Planners and others using the soil survey can evaluate the impact of specific land uses on the overall productivity of the survey area or other broad planning area and on the environment. Productivity and the environment are closely related to the nature of the soil. Plans should maintain or create a land-use pattern in harmony with the natural soil.

Contractors can find information that is useful in locating sources of sand and gravel, roadfill, and topsoil. Other information indicates the presence of bedrock, wetness, or very firm soil horizons that cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists also can find useful information in this soil survey. The safe disposal of wastes, for example, is closely related to properties of the soil. Pavements, sidewalks, campsites, playgrounds, lawns, and trees and shrubs are influenced by the nature of the soil.

Crops and pasture

CHARLES A. HOLDEN, JR., conservation agronomist, Soil Conservation Service, helped prepare this section.

The major management concerns in the use of the soils for crops and pasture are described in this section. In addition, the crops or pasture plants best suited to the soil, including some not commonly grown in the survey area, are discussed; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are presented for each soil.

This section provides information about the overall agricultural potential of the survey area and about the management practices that are needed. The information is useful to equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others. For each kind of soil, information about management is presented in the section "Soil maps for detailed planning." Planners of management systems for individual fields or farms should also consider the detailed information given in the description of each soil.

More than 95,000 acres in the survey area was used for crops and pasture in 1967, according to the Conservation Needs Inventory (*5*). Of this total 4,000 acres was used for permanent pasture; 74,000 acres, for row crops, mainly cotton, tobacco, soybeans, and corn; and 420 acres for hay; the rest was idle cropland.

The potential of the soils in Dillon County for increased production of food is good. About 90,000 acres of potentially good cropland is currently used as woodland, and about 2,000 acres is used as pasture. In addition to the reserve productive capacity represented by this land, food production could also be increased considerably by extending the latest crop production technology to all cropland in the county. This soil survey can greatly facilitate the application of such technology.

Acreage in crops and pasture has gradually been decreasing as more and more land is used for urban development. It was estimated that in 1967 there were about 7,000 acres of urban and built-up land in the county; this figure has been growing each year. The use of this soil survey to help make land use decisions that will influence the future role of farming in the county is discussed in the section "General soil map for broad land use planning."

Soil erosion is the major concern on about one-fifth of the cropland and pasture in Dillon County. If slope is more than 2 percent, erosion by water is a hazard. Persanti soils, for example, have slopes of 2 to 6 percent and are also wet.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Faceville, Persanti, Summerton, and Varina soils, and on soils that have a layer in or below the subsoil that limits the depth of the root zone. Such layers include a fragipan, as in McColl soils. Erosion also reduces productivity on soils that tend to be droughty, such as Lakeland sand. Second, soil erosion on farmland results in sedimentation. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, preparing a good seedbed and tilling are difficult on clayey or hardpan spots because the original friable surface soil has been eroded away. Such spots are common in areas of Faceville and Summerton soils.

Erosion control practices provide protective surface cover, reduce runoff, and increase infiltration. A cropping system that keeps vegetative cover on the soil for extended periods can hold soil erosion losses to amounts that will not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, the legume and grass forage crops in the cropping system reduce erosion on sloping land, provide nitrogen, and improve tilth for the following crop.

Minimizing tillage and leaving crop residues on the surface help to increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most soils in the survey area. No-tillage for corn is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope and reduce runoff and erosion. They are most practical on deep, well drained soils that have uniform slopes. Faceville soils and some Dothan soils are suitable for terraces. The other soils are less suitable for terraces and diversions because of irregular slopes, excessive wetness in the terrace channels, or a clayey subsoil which would be exposed in terrace channels.

Contouring and contour stripcropping are erosion control practices in parts of the survey area. They are best adapted to soils that have smooth, uniform slopes, including most areas of the gently sloping Dothan and Orangeburg soils.

Soil blowing is a hazard on the sandy Brogdon and Fuquay soils. Soil blowing can damage these soils in a few hours if winds are strong and the soils are dry and bare of vegetation or surface mulch. Maintaining vegetative cover and surface mulch minimizes soil blowing on these soils.

Information for the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil drainage is the major management need on about one-third of the acreage used for crops and pasture in the survey area. Some soils are naturally so wet that the production of crops common to the area is generally not possible. These are the poorly drained Chastain, Johnston, and Tawcaw soils, which make up about 23,570 acres in the survey area. Also in this category are the organic Ponzer soils, which make up about 2,000 acres.

Unless artificially drained, the somewhat poorly drained soils are so wet that crops are damaged during most years. In this category are Dunbar, Johns, Lynchburg, and Smithboro soils, which make up about 30,000 acres.

Varina, Summerton, and Persanti soils have good natural drainage most of the year, but they tend to dry out slowly after rains. Small areas of wetter soils along drainageways and in swales are commonly included in areas of the moderately well drained Persanti soils, especially where slopes are 2 to 6 percent. Artificial drainage is needed in some of these wetter areas.

The design of surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of the poorly drained and very poorly drained soils used for intensive row cropping. Drains have to be more closely spaced in soils with slow permeability than in the more permeable soils. Tile drainage is very slow in Smithboro, Persanti, and Duplin soils. Finding adequate outlets for tile drainage systems is difficult in many areas of Smithboro, Lynchburg, Dunbar, Clarendon, and Duplin soils.

Organic soils oxidize and subside when the pore space is filled with air; therefore, special drainage systems are needed to control the depth and the period of drainage. Keeping the water table at the level required by crops during the growing season and raising it to the surface during other parts of the year minimize the oxidation and subsidence of organic soils. Information on drainage design for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil fertility is naturally low in most soils of the survey area. All are naturally acid. Unless limed, the organic Ponzer soils are extremely acid. These soils require special fertilizers because they are low in boron and other trace elements.

Many soils are naturally very strongly acid, and if they have never been limed, applications of ground limestone are required to raise the pH level sufficiently for crop growth. Available phosphorus and potash levels are naturally low in most of these soils. On all soils additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of loamy fine sand. This layer is light in color and low in content of organic matter. Generally the structure of such soils is weak, and intense rainfall causes the formation of a slight crust on the surface. Once the crust forms, it reduces infiltration and increases runoff. Regular additions of crop residue, manure, and other organic material can help to improve soil structure and reduce crust formation.

Fall plowing is generally not a good practice on the county's light-colored soils that have a surface layer of loamy fine sand because of the crust that forms during winter and spring. About one-fifth of the cropland consists of sloping soils that are subject to damaging erosion if they are plowed in the fall.

The dark colored Coxville, Byars, and Cantey soils are clayey, and tilth is a concern because the soils often stay wet until late in spring. If they are wet when plowed, they tend to be very cloddy when dry and good seedbeds are difficult to prepare. Fall plowing generally results in good tilth in spring.

Field crops suited to the soils and climate of the survey area include many that are not now commonly grown. Corn, cotton, tobacco, and soybeans are the row crops. Grain sorghum, sunflowers, peanuts, potatoes, and similar crops can be grown if economic conditions are favorable.

Wheat and oats are the common close-growing crops. Rye, barley, and flax could be grown, and grass seed could be produced from bahiagrass, annual lespedeza, lespedeza bicolor, switchgrass, and crownvetch.

Special crops grown commercially in the survey area are cucumbers and other vegetables, and nursery plants. A small acreage throughout the county is used for melons, strawberries, sweetcorn, tomatoes, pecans, peppers, and other vegetables and small fruits. In addition,

large areas can be adapted to other special crops such as blueberries, grapes, and many vegetables.

Deep soils that have good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. In the survey area these are the Blanton, Brogdon, Dothan, Fuquay, Kenansville, Lakeland, Lucy, Orangeburg, and Pocalla soils that have slopes of less than 6 percent, and they total about 64,000 acres. Crops can generally be planted and harvested earlier on these soils than on the other soils in the survey area.

If adequately drained, the muck soils in the county are well suited to a wide range of vegetable crops. Ponzer soils make up about 2,000 acres in the survey area.

Most of the well drained soils in the survey area are suitable for orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor, however, generally are poorly suited to early vegetables, small fruits, and orchards.

Latest information and suggestions for growing special crops can be obtained from local offices of the Cooperative Extension Service and the Soil Conservation Service.

Yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. Absence of an estimated yield indicates that the soil is not suited to the crop or the crop is not commonly grown on the soil.

The estimated yields were based mainly on the experience and records of farmers, conservationists, and extension agents. Results of field trials and demonstrations and available yield data from nearby counties were also considered.

The yields were estimated assuming that the latest soil and crop management practices were used. Hay and pasture yields were estimated for the most productive varieties of grasses and legumes suited to the climate and the soil. A few farmers may be obtaining average yields higher than those shown in table 6.

The management needed to achieve the indicated yields of the various crops depends on the kind of soil and the crop. Such management provides drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate tillage practices, including time of tillage and seedbed preparation and tilling when soil moisture is favorable; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residues, barnyard manure, and green-manure crops; harvesting crops with the smallest possible loss; and timeliness of all fieldwork.

The estimated yields reflect the productive capacity of the soils for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not included because the acreage of these crops is small. The local offices of the Soil Conservation Service and the Cooperative Extension Service can provide information about the management concerns and productivity of the soils for these crops.

Capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. The soils are classed according to their limitations when they are used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops that require special management. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forest trees or for engineering purposes.

In the capability system, the soils in this survey area are grouped at two levels: capability class and subclass. These levels are defined in the following paragraphs. A survey area may not have soils of all classes.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants, or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and landforms have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-

growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class and subclass is indicated in table 7. All soils in the survey area except those named at a level higher than the series are included. Some of the soils that are well suited to crops and pasture may be in low-intensity use, for example, soils in capability classes I and II. Data in this table can be used to determine the farming potential of such soils.

The capability subclass is identified in the description of each soil map unit in the section "Soil maps for detailed planning."

Woodland management and productivity

Trees cover about 58 percent of Dillon County. Needleleaved forest species grow most frequently on uplands and stream terraces, whereas broad-leaved species generally predominate on the bottomlands along the rivers and small streams.

Good stands of commercial trees are produced in the woodlands of the county. The value of the wood products is substantial, though it is below its potential. Other values include grazing, wildlife, recreation, natural beauty, and conservation of soil and water. This section has been provided to explain how soils affect tree growth and management in the county.

Table 8 contains information useful to woodland owners or forest managers planning use of the soils for wood crops. Only those soils suitable for wood crops are listed, and the ordination (woodland suitability) symbol for each soil is given. All soils bearing the same ordination symbol require the same general kinds of woodland management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates insignificant limitations or restrictions. If a soil has more than one limitation, priority in placing the soil into a limitation class is in the following order: x, w, t, d, c, s, f, and r.

In table 8 the soils are also rated for a number of factors to be considered in management. *Slight*, *moderate*, and *severe* are used to indicate the degree of major soil limitations.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or equipment; *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree that the soil affects expected mortality of planted tree seedlings. Plant competition is not considered in the ratings. Seedlings from good planting stock that are properly planted during a period of sufficient rainfall are rated. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent. On poorly drained and very poorly drained soils that have severe seedling mortality, tree planting is feasible only in areas with adequate surface drainage.

The *potential productivity* of merchantable or *important trees* on a soil is expressed as a *site index*. The site index applies to fully stocked, even-aged, unmanaged stands. Important trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. On poorly drained and very poorly drained soils that have severe seedling mortality and equipment limitations, potential productivity is attainable only in areas with adequate surface drainage.

Trees to plant are those that are suitable for commercial wood production and that are suited to the soils.

Woodland understory vegetation

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some types of forest, under proper management, can produce enough understory vegetation to support grazing of livestock or wildlife, or both.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees, the density of the canopy, and the depth and condition of the forest litter. The density of the forest canopy affects the amount of light that understory plants receive during the growing season.

Engineering

CALVIN DERRICK, civil engineer, Soil Conservation Service, helped prepare this section.

This section provides information about the use of soils for building sites, sanitary facilities, construction material, and water management. Among those who can benefit from this information are engineers, landowners, community planners, town and city managers, land developers, builders, contractors, and farmers and ranchers.

The ratings in the engineering tables are based on test data and estimated data in the "Soil properties" section. The ratings were determined jointly by soil scientists and engineers of the Soil Conservation Service using known relationships between the soil properties and the behavior of soils in various engineering uses.

Among the soil properties and site conditions identified by a soil survey and used in determining the ratings in this section were grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure or aggregation, in-place soil density, and geologic origin of the soil material. Where pertinent, data about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of absorbed cations were also considered.

On the basis of information assembled about soil properties, ranges of values can be estimated for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, shear strength, compressibility, slope stability, and other factors of expected soil behavior in engineering uses. As appropriate, these values can be applied to each major horizon of each soil or to the entire profile.

These factors of soil behavior affect construction and maintenance of roads, airport runways, pipelines, foundations for small buildings, ponds and small dams, irrigation projects, drainage systems, sewage and refuse disposal systems, and other engineering works. The ranges of values can be used to (1) select potential residential, commercial, industrial, and recreational areas; (2) make preliminary estimates pertinent to construction in a particular area; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for location of sanitary landfills, onsite sewage disposal systems, and other waste disposal facilities; (5) plan detailed onsite investigations of soils and geology; (6) find sources of gravel, sand, clay, and topsoil; (7) plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; (8) relate performance of structures already built to the properties of the kinds of soil on which they are built so that performance of similar structures on the same or a similar soil in other locations can be predicted; and (9) predict the trafficability of soils for cross-country movement of vehicles and construction equipment.

Data presented in this section are useful for land-use planning and for choosing alternative practices or general designs that will overcome unfavorable soil properties and minimize soil-related failures. Limitations to the use of these data, however, should be well understood. First, the data are generally not presented for soil material below a depth of 5 or 6 feet. Also, because of the scale of the detailed map in this soil survey, small areas of soils that differ from the dominant soil may be included in mapping. Thus, these data do not eliminate the need for onsite investigations, testing, and analysis by personnel having expertise in the specific use contemplated.

The information is presented mainly in tables. Table 9 shows, for each kind of soil, the degree and kind of limitations for building site development; table 10, for sanitary facilities; and table 12, for water management. Table 11 shows the suitability of each kind of soil as a source of construction materials.

The information in the tables, along with the soil map, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations and to construct interpretive maps for specific uses of land.

Some of the terms used in this soil survey have a special meaning in soil science. Many of these terms are defined in the Glossary.

Building site development

The degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, and local roads and streets are indicated in table 9. A *slight* limitation indicates that soil properties generally are favorable for the specified use; any limitation is minor and easily overcome. A *moderate* limitation indicates that soil properties and site features are unfavorable for the specified use, but the limitations can be overcome or minimized by special planning and design. A *severe* limitation indicates that one or more soil properties or site features are so unfavorable or difficult to overcome that a major increase in construction effort, special design, or intensive maintenance is required. For some soils rated severe, such costly measures may not be feasible.

Shallow excavations are made for pipelines, sewerlines, communications and power transmission lines, basements, open ditches, and cemeteries. Such digging or trenching is influenced by soil wetness caused by a seasonal high water table; the texture and consistence of soils; the tendency of soils to cave in or slough; and the presence of very firm, dense soil layers, bedrock, or large stones. In addition, excavations are affected by slope of the soil and the probability of flooding. Ratings do not apply to soil horizons below a depth of 6 feet unless otherwise noted.

In the soil series descriptions, the consistence of each soil horizon is given, and the presence of very firm or extremely firm horizons, usually difficult to excavate, is indicated.

Dwellings and *small commercial buildings* referred to in table 9 are built on undisturbed soil and have foundation loads of a dwelling no more than three stories high. Separate ratings are made for small commercial buildings without basements and for dwellings with and without basements. For such structures, soils should be sufficiently stable that cracking or subsidence of the structure from settling or shear failure of the foundation does not occur. These ratings were determined from estimates of the shear strength, compressibility, and shrink-swell potential of the soil. Soil texture, plasticity and in-place density, potential frost action, soil wetness, and depth to a seasonal high water table were also considered. Soil wetness and depth to a seasonal high water table indicate potential difficulty in providing adequate drainage for basements, lawns, and gardens. Slope is an important consideration in the choice of sites for these structures and was considered in determining the ratings. Susceptibility to flooding is a serious hazard.

Local roads and streets referred to in table 9 have an all-weather surface that can carry light to medium traffic all year. They consist of a subgrade of the underlying soil material; a base of gravel, crushed rock fragments, or soil material stabilized with lime or cement; and a flexible or rigid surface, commonly asphalt or concrete. The roads are graded with soil material at hand, and most cuts and fills are less than 6 feet deep.

The load supporting capacity and the stability of the soil as well as the quantity and workability of fill material available are important in design and construction of roads and streets. The classifications of the soil and the soil texture, density, shrink-swell potential, and potential frost action are indicators of the traffic supporting capacity used in making the ratings. Soil wetness, flooding, slope, and content of large stones affect stability and ease of excavation.

Sanitary facilities

Favorable soil properties and site features are needed for proper functioning of septic tank absorption fields, sewage lagoons, and sanitary landfills. The nature of the soil is important in selecting sites for these facilities and in identifying limiting soil properties and site features to be considered in design and installation. Also, those soil properties that affect ease of excavation or installation of these facilities will be of interest to contractors and local officials. Table 10 shows the degree and kind of limitations of each soil for such uses and for use of the soil as daily cover for landfills. It is important to observe local ordinances and regulations.

If the degree of soil limitation is expressed as *slight*, soils are generally favorable for the specified use and limitations are minor and easily overcome; if *moderate*, soil properties or site features are unfavorable for the specified use, but limitations can be overcome by special planning and design; and if *severe*, soil properties or site features are so unfavorable or difficult to overcome that major soil reclamation, special designs, or intensive maintenance is required. Soil suitability is rated by the terms *good, fair*, and *poor*, which mean about the same as *slight, moderate*, and *severe*.

Septic tank absorption fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into the natural soil. Only the soil horizons between depths of 18 and 72 inches are evaluated for this use. The soil properties and site features considered are those that affect the absorption of the effluent and those that affect the construction of the system.

Properties and features that affect absorption of the effluent are permeability, depth to seasonal high water table, depth to bedrock, and susceptibility to flooding. Excessive slope can cause lateral seepage and surfacing of the effluent. Also, soil erosion and soil slippage are hazards if absorption fields are installed on sloping soils.

In some soils, loose sand is less than 4 feet below the tile lines. In these soils the absorption field does not adequately filter the effluent, and ground water in the area may be contaminated.

On many of the soils that have moderate or severe limitations for use as septic tank absorption fields, a system to lower the seasonal water table can be installed or the size of the absorption field can be increased so that performance is satisfactory.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons have a nearly level floor and cut slopes or embankments of compacted soil material. Aerobic lagoons generally are designed to hold sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Soils that are very high in content of organic matter are not suitable. Unless the soil has very slow permeability, contamination of ground water is a hazard where the seasonal high water table is above the level of the lagoon floor. Where the water table is seasonally high, seepage of ground water into the lagoon can seriously reduce the lagoon's capacity for liquid waste. Slope, depth to bedrock, and susceptibility to flooding also affect the suitability of sites for sewage lagoons or the cost of construction. Shear strength and permeability of compacted soil material affect the performance of embankments.

Sanitary landfill is a method of disposing of solid waste by placing refuse in successive layers either in excavated trenches or on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil material. Landfill areas are subject to heavy vehicular traffic. Risk of polluting ground water and trafficability affect the suitability of a soil for this use. The best soils have a loamy or silty texture, have moderate to slow permeability, are deep to a seasonal water table, and are not subject to flooding. Clayey soils are likely to be sticky and difficult to spread. Sandy or gravelly soils generally have rapid permeability, which might allow noxious liquids to contaminate ground water. Soil wetness

can be a limitation because operating heavy equipment on a wet soil is difficult. Seepage into the refuse increases the risk of pollution of ground water.

Ease of excavation affects the suitability of a soil for the trench type of landfill. A suitable soil is deep to bedrock and free of large stones and boulders. If the seasonal water table is high, water will seep into trenches.

Unless otherwise stated, the limitations in table 10 apply only to the soil material within a depth of about 6 feet. If the trench is deeper, a limitation of slight or moderate may not be valid. Site investigation is needed before a site is selected.

Daily cover for landfill should be soil that is easy to excavate and spread over the compacted fill in wet and dry periods. Soils that are loamy or silty and free of stones or boulders are better than other soils. Clayey soils may be sticky and difficult to spread; sandy soils may be subject to soil blowing.

The soils selected for final cover of landfills should be suitable for growing plants. Of all the horizons, the A horizon in most soils has the best workability, more organic matter, and the best potential for growing plants. Thus, for either the area- or trench-type landfill, stockpiling material from the A horizon for use as the surface layer of the final cover is desirable.

If it is necessary to bring in soil material for daily or final cover, thickness of suitable soil material available and depth to a seasonal high water table in soils surrounding the sites should be evaluated. Other factors to be evaluated are those that affect reclamation of the borrow areas. These factors include slope, erodibility, and potential for plant growth.

Construction materials

The suitability of each soil as a source of roadfill, sand, gravel, and topsoil is indicated in table 11 by ratings of good, fair, or poor. The texture, thickness, and organic-matter content of each soil horizon are important factors in rating soils for use as construction material. Each soil is evaluated to the depth observed, generally about 6 feet.

Roadfill is soil material used in embankments for roads. Soils are evaluated as a source of roadfill for low embankments, which generally are less than 6 feet high and less exacting in design than high embankments. The ratings reflect the ease of excavating and working the material and the expected performance of the material where it has been compacted and adequately drained. The performance of soil after it is stabilized with lime or cement is not considered in the ratings, but information about some of the soil properties that influence such performance is given in the descriptions of the soil series.

The ratings apply to the soil material between the A horizon and a depth of 5 to 6 feet. It is assumed that soil horizons will be mixed during excavation and spreading. Many soils have horizons of contrasting suitability within their profile. The estimated engineering properties in table 15 provide specific information about the nature of each horizon. This information can help determine the suitability of each horizon for roadfill.

Soils rated *good* are coarse grained. They have low shrink-swell potential, low frost action potential, and few cobbles and stones. They are at least moderately well drained and have slopes of 15 percent or less. Soils rated *fair* have a plasticity index of less than 15 and have other limiting features, such as moderate shrink-swell potential, moderately steep slopes, or wetness. If the thickness of suitable material is less than 3 feet, the entire soil is rated *poor*.

Sand and *gravel* are used in great quantities in many kinds of construction. The ratings in table 11 provide guidance as to where to look for probable sources and are based on the probability that soils in a given area contain sizable quantities of sand or gravel. A soil rated *good* or *fair* has a layer of suitable material at least 3 feet thick, the top of which is within a depth of 6 feet. Fine-grained soils are not suitable sources of sand and gravel.

The ratings do not take into account depth to the water table or other factors that affect excavation of the material. Descriptions of grain size, kinds of minerals, reaction, and stratification are given in the soil series descriptions and in table 15.

Topsoil is used in areas where vegetation is to be established and maintained. Suitability is affected mainly by the ease of working and spreading the soil material in preparing a seedbed and by the ability of the soil material to support plantlife. Also considered is the damage that can result in the area from which the topsoil is taken.

The ease of excavation is influenced by the thickness of suitable material, wetness, and slope. The ability of the soil to support plantlife is determined by texture and structure. Organic matter in the A1 or Ap horizon greatly increases the absorption and retention of moisture and nutrients. Therefore, the soil material from these horizons should be carefully preserved for later use.

Soils rated *good* have at least 16 inches of friable loamy material at their surface. They are free of stones and cobbles, are low in content of gravel, and have gentle slopes. They are low in soluble salts that can restrict plant growth. They are naturally fertile or respond well to fertilizer. They are not so wet that excavation is difficult during most of the year.

Soils rated *fair* are loose sandy soils or firm loamy or clayey soils in which the suitable material is only 8 to 16 inches thick.

Soils rated *poor* are very sandy soils or very firm clayey soils; soils that have suitable layers less than 8 inches thick, steep soils, and poorly drained soils.

Although a rating of *good* is not based entirely on high content of organic matter, a surface horizon is generally preferred for topsoil because of its organic-matter content. This horizon is designated as A1 or Ap in the soil series descriptions. The absorption and retention of moisture and nutrients for plant growth are greatly increased by organic matter.

Water management

Many soil properties and site features that affect water management practices have been identified in this soil survey. In table 12 the degree of soil limitation and soil and site features that affect use are indicated for each kind of soil. This information is significant in planning, installing, and maintaining water control structures.

Soil and site limitations are expressed as slight, moderate, and severe. *Slight* means that the soil properties and site features are generally favorable for the specified use and that any limitation is minor and easily overcome. *Moderate* means that some soil properties or site features are unfavorable for the specified use but can be overcome or modified by special planning and design. *Severe* means that the soil properties and site features are so unfavorable and so difficult to correct or overcome that major soil reclamation, special design, or intensive maintenance is required.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have a low seepage potential, which is determined by permeability and the depth to fractured or permeable bedrock or other permeable material.

Embankments, dikes, and levees require soil material that is resistant to seepage, erosion, and piping and has favorable stability, shrink-swell potential, shear strength, and compaction characteristics. Large stones and organic matter in a soil downgrade the suitability of the soil for use in embankments, dikes, and levees.

Aquifer-fed excavated ponds are bodies of water made by excavating a pit or dugout into a ground-water aquifer. Excluded are ponds that are fed by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Ratings in table 12 are for ponds that are properly designed, located, and constructed. Soil properties and site features that affect aquifer-fed ponds are depth to a permanent water table, permeability of the aquifer, quality of the water, and ease of excavation.

Drainage of soil is affected by such soil properties as permeability; texture; depth to bedrock, hardpan, or other layers that affect the rate of water movement; depth to the water table; slope; stability of ditchbanks; susceptibility to flooding; and availability of outlets for drainage.

Irrigation is affected by such features as slope, susceptibility to flooding, hazards of water erosion and soil blowing, texture, depth of root zone, rate of water intake at the surface, permeability of the soil below the surface layer, available water capacity, need for drainage, and depth to the water table.

Recreation

The soils of the survey area are rated in table 13 according to limitations that affect their suitability for recreation uses. The ratings are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites available, and either access to public sewerlines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreation use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity, and frequency of flooding is essential in planning recreation facilities.

The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that the limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 13 can be supplemented by information in other parts of this survey. Especially helpful are interpretations for septic tank absorption fields, given in table 10, and interpretations for dwellings without basements and for local roads and streets, given in table 9.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that will increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock or hardpan should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once dur-

ing the annual period of use. They should have moderate slopes and have few or no stones or boulders on the surface.

Wildlife habitat

WILLIAM W. NEELY, biologist, Soil Conservation Service, helped prepare this section.

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover, and they affect the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, is inadequate, or is inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by helping the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; selecting areas that are suitable for wildlife; selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of habitat are very severe and that unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs.

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are lespedeza bicolor, annual lespedeza, bahiagrass, switchgrass, white clover, trefoil, crownvetch, lovegrass, and bromegrass.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are beggarweed, lespedeza, wildbean, pokeweed, and partridgepea.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of hardwood plants are oak, poplar, cherry, sweetgum, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated *good* are autumnolive and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, and sedges.

Shallow water areas are bodies of water that have an average depth of less than 5 feet and that are useful to wildlife. They can be naturally wet areas, or they can be created by dams or levees or by water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, slope, and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are waterfowl feeding areas and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs.

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kinds of wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, dove, killdeer, cottontail rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, vireos, squirrels, gray fox, raccoon, and deer.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, rails, kingfishers, mink, and muskrat.

Soil properties

CALVIN DERRICK, civil engineer, Soil Conservation Service, helped prepare this section.

Extensive data about soil properties are summarized on the following pages. The two main sources of these data are the many thousands of soil borings made during the course of the survey and the laboratory analyses of selected soil samples from typical profiles.

In making soil borings during field mapping, soil scientists can identify several important soil properties. They note the seasonal soil moisture condition or the presence of free water and its depth. For each horizon in the profile, they note the thickness and color of the soil material; the texture, or amount of clay, silt, sand, and gravel or other coarse fragments; the structure, or the natural pattern of cracks and pores in the undisturbed soil; and the consistence of the soil material in place under the existing soil moisture conditions. They record the depth of plant roots, determine the pH or reaction of the soil, and identify any free carbonates.

Samples of soil material are analyzed in the laboratory to verify the field estimates of soil properties and to determine all major properties of key soils, especially properties that cannot be estimated accurately by field observation. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for many soil series not tested are available from nearby survey areas.

The available field and laboratory data are summarized in tables. The tables give the estimated range of engineering properties, the engineering classifications, and the physical and chemical properties of each major horizon of each soil in the survey area. They also present data about pertinent soil and water features, engineering test data, and data obtained from physical and chemical laboratory analyses of soils.

Engineering properties

Table 15 gives estimates of engineering properties and classifications for the major horizons of each soil in the survey area.

Most soils have, within the upper 5 or 6 feet, horizons of contrasting properties. Table 15 gives information for each of these contrasting horizons in a typical profile. *Depth* to the upper and lower boundaries of each horizon is indicated. More information about the range in depth and about other properties in each horizon is given for each soil series in the section "Soil series and morphology."

Texture is described in table 15 in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in soil material that is less than 2 millimeters in diameter. "Loam," for example, is soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. Other texture terms are defined in the Glossary.

The two systems commonly used in classifying soils for engineering use are the Unified Soil Classification System (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO) (*1*).

The *Unified* system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter, plasticity index, liquid limit, and organic-matter content. Soils are grouped into 15 classes—eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt. Soils on the borderline between two classes have a dual classification symbol, for example, CL-ML.

The *AASHTO* system classifies soils according to those properties that affect their use in highway construction and maintenance. In this system a mineral soil is classified in one of seven basic groups ranging from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines. At the other extreme, in group A-7, are fine-grained soils. Highly organic soils are classified in group A-8 on the basis of visual inspection.

When laboratory data are available, the A-1, A-2, and A-7 groups are further classified as follows: A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, and A-7-6. As an additional refinement, the desirability of soils as subgrade material can be indicated by a group index number. These numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested in the survey area, with group index numbers in parentheses, is given in table 18. The estimated classification, without group index numbers, is given in

table 15. Also in table 15, the percentage, by weight, of rock fragments more than 3 inches in diameter is estimated for each major horizon. These estimates are determined mainly by observing volume percentage in the field and then converting that, by formula, to weight percentage.

Percentage of the soil material less than 3 inches in diameter that passes each of four sieves (U.S. standard) is estimated for each major horizon. The estimates are based on tests of soils that were sampled in the survey area and in nearby areas and on field estimates from many borings made during the survey.

Liquid limit and *plasticity index* indicate the effect of water on the strength and consistence of soil. These indexes are used in the Unified and AASHTO soil classification systems. They are also used as indicators in making general predictions of soil behavior. Range in liquid limit and in plasticity index is estimated on the basis of test data from the survey area or from nearby areas and on observations of the many soil borings made during the survey.

In some surveys, the estimates are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterburg limits extend a marginal amount across classification boundaries (1 or 2 percent), the classification in the marginal zone is omitted.

Physical and chemical properties

Table 16 shows estimated values for several soil characteristics and features that affect behavior of soils in engineering uses. These estimates are given for each major horizon, at the depths indicated, in the typical pedon of each soil. The estimates are based on field observations and on test data for these and similar soils.

Permeability is estimated on the basis of known relationships among the soil characteristics observed in the field—particularly soil structure, porosity, and gradation or texture—that influence the downward movement of water in the soil. The estimates are for vertical water movement when the soil is saturated. Not considered in the estimates is lateral seepage or such transient soil features as plowpans and surface crusts. Permeability of the soil is an important factor to be considered in planning and designing drainage systems, in evaluating the potential of soils for septic tank systems and other waste disposal systems, and in many other aspects of land use and management.

Available water capacity is rated on the basis of soil characteristics that influence the ability of the soil to hold water and make it available to plants. Important characteristics are content of organic matter, soil texture, and soil structure. Shallow-rooted plants are not likely to use the available water from the deeper soil horizons. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design of irrigation systems.

Soil reaction is expressed as a range in pH values. The range in pH of each major horizon is based on many field checks. For many soils, the values have been verified by laboratory analyses. Soil reaction is important in selecting the crops, ornamental plants, or other plants to be grown; in evaluating soil amendments for fertility and stabilization; and in evaluating the corrosivity of soils.

Shrink-swell potential depends mainly on the amount and kind of clay in the soil. Laboratory measurements of the swelling of undisturbed clods were made for many soils. For others the swelling was estimated on the basis of the kind and amount of clay in the soil and on measurements of similar soils. The size of the load and the magnitude of the change in soil moisture content also influence the swelling of soils. Shrinking and swelling of some soils can cause damage to building foundations, basement walls, roads, and other structures unless special designs are used. A high shrink-swell potential indicates that special design and added expense may be required if the planned use of the soil will not tolerate large volume changes.

Risk of corrosion pertains to potential soil-induced chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to soil moisture, particle-size distribution, total acidity, and electrical conductivity of the soil material. The rate of corrosion of concrete is based mainly on the sulfate content, texture, and acidity of the soil. Protective measures for steel or more resistant concrete help to avoid or minimize damage resulting from the corrosion. Uncoated steel intersecting soil boundaries or soil horizons is more susceptible to corrosion than an installation that is entirely within one kind of soil or within one soil horizon.

Soil and water features

Table 17 contains information helpful in planning land uses and engineering projects that are likely to be affected by soil and water features.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are placed in one of four groups on the basis of the intake of water after the soils have been wetted and have received precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils that have a layer that impedes the downward movement of water or soils that have moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clay soils that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding is the temporary covering of soil with water from overflowing streams, with runoff from adjacent slopes, and by tides. Water standing for short periods after rains or after snow melts is not considered flooding, nor is water in swamps and marshes. Flooding is rated in general terms that describe the frequency and duration of flooding and the time of year when flooding is most likely. The ratings are based on evidence in the soil profile of the effects of flooding, namely thin strata of gravel, sand, silt, or, in places, clay deposited by floodwater; irregular decrease in organic-matter content with increasing depth; and absence of distinctive soil horizons that form in soils of the area that are not subject to flooding. The ratings are also based on local information about floodwater levels in the area and the extent of flooding; and on information that relates the position of each soil on the landscape to historic floods.

The generalized description of flood hazards is of value in land-use planning and provides a valid basis for land-use restrictions. The soil data are less specific, however, than those provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table is the highest level of a saturated zone more than 6 inches thick for a continuous period of more than 2 weeks during most years. The depth to a seasonal high water table applies to undrained soils. Estimates are based mainly on the relationship between grayish colors or mottles in the soil and the depth to free water observed in many borings made during the course of the soil survey. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table, that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. Only saturated zones above a depth of 5 or 6 feet are indicated.

Information about the seasonal high water table helps in assessing the need for specially designed foundations, the need for specific kinds of drainage systems, and the need for footing drains to insure dry basements. Such information is also needed to decide whether or not construction of basements is feasible and to determine how septic tank absorption fields and other underground installations will function. Also, a seasonal high water table affects ease of excavation.

Engineering test data

Table 18 contains engineering test data for some of the major soil series in Dillon County. These tests were made to help evaluate the soils for engineering purposes. Since each soil was sampled to a depth of 6 feet, the data are not adequate for estimating the characteristics of soil material deeper than 6 feet. The engineering classifications given are based on data obtained by mechanical analyses and by tests to determine liquid limits and plastic limits. The mechanical analyses were made by combined sieve and hydrometer methods.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a soil is increased from a dry state, the material changes from a semisolid to a plastic. If the moisture content is further increased, the material changes from a plastic to a liquid. The plastic limit is the moisture content at which the soil material changes from semisolid to plastic; and the liquid limit, from plastic to liquid. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

The data presented are for soil samples that were collected from carefully selected sites. The soil profiles sampled are typical of the series discussed in the section "Soil series and morphology." The soil samples were analyzed by the South Carolina State Highway Department.

The methods used in obtaining the data are listed by code in the next paragraph. Most of the codes, in parentheses, refer to the methods assigned by the American Association of State Highway and Transportation Officials. The codes for shrinkage and Unified classification are those assigned by the American Society for Testing and Materials.

The methods and codes are AASHTO classification (M-145-66); Unified classification (D-2487-66T); mechanical analysis (T88-57); liquid limit (T89-60); plasticity index (T90-56).

Soil series and morphology

In this section, each soil series recognized in the survey area is described in detail. The descriptions are arranged in alphabetic order by series name.

Characteristics of the soil and the material in which it formed are discussed for each series. The soil is then compared to similar soils and to nearby soils of other series. Then a pedon, a small three-dimensional area of soil that is typical of the soil series in the survey area, is described. The detailed descriptions of each soil horizon follow standards in the Soil Survey Manual (*6*). Unless otherwise noted, colors described are for moist soil.

Following the pedon description is the range of important characteristics of the soil series in this survey area. Phases, or map units, of each soil series are described in the section "Soil maps for detailed planning."

Blanton series

The Blanton series consists of deep, moderately well drained, moderately permeable soils that formed in sandy and loamy marine deposits. These nearly level to gently sloping soils are on broad ridges of the Coastal Plain. Slope is dominantly less than 4 percent but ranges to as much as 6 percent along drainageways.

Blanton soils are geographically closely associated with Lakeland, Fuquay, Pocalla, Brogdon, Chipley, Osier, and Rutlege soils. Lakeland, Fuquay, Pocalla, and Brogdon soils are on similar landscapes at about the same elevation. Lakeland soils have an AC profile and are excessively drained. Fuquay soils have an arenic A horizon. Pocalla and Brogdon soils are bisequal. Chipley soils, which are in lower lying, flat or concave areas, have a high water table. Osier and Rutlege soils, which are in lower lying areas along local drainageways, are poorly drained.

Typical pedon of Blanton sand, 0 to 6 percent slopes, about 2 miles south of Lake View and 1 mile southeast of intersection of South Carolina Secondary Highways 55 and 436, and 300 feet southwest of paved road:

Ap—0 to 6 inches; brown (10YR 5/3) sand; weak fine and medium granular structure; very friable; common fine roots; medium acid; clear smooth boundary.

A21—6 to 24 inches; light yellowish brown (10YR 6/4) sand; few medium faint yellowish brown (10YR 5/8) mottles; weak fine and medium granular structure; very friable; few fine roots; 10 percent uncoated grains of sand; strongly acid; gradual wavy boundary.

A22—24 to 40 inches; yellowish brown (10YR 5/6) sand; common medium distinct pale brown (10YR 6/3) mottles; weak fine granular structure; very friable; few fine roots; very strongly acid; gradual wavy boundary.

A23—40 to 50 inches; pale brown (10YR 6/3) sand; common medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

B1—50 to 58 inches; light yellowish brown (10YR 6/4) sandy loam; common medium distinct strong brown (7.5YR 5/6) and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; very friable; grains of sand coated and bridged with clay; very strongly acid; gradual wavy boundary.

B21t—58 to 68 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct gray (10YR 6/1) mottles and few medium distinct strong brown (7.5YR 5/8) and pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; grains of sand coated and bridged with clay; few fine holes and pores; very strongly acid; gradual wavy boundary.

B22t—68 to 78 inches; yellowish brown (10YR 5/4) sandy clay loam; common medium and coarse distinct gray (10YR 6/1) mottles; moderate medium subangular blocky structure; friable; grains of sand coated and bridged with clay; few fine holes and pores; very strongly acid.

Solum thickness is more than 80 inches. The A horizon is medium acid to very strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon ranges from 45 to 60 inches in thickness. The A1 or Ap horizon ranges from 6 to 9 inches in thickness and is dark grayish brown, very dark grayish brown, brown, or dark gray. The A2 horizon ranges from 37 to 54 inches in thickness and is pale brown, light yellowish brown, yellowish brown, strong brown, brownish yellow, or very pale brown sand or loamy sand.

The B1 horizon, where present, is 5 to 10 inches thick and is yellowish brown, light yellowish brown, strong brown, or brownish yellow, or it is mottled with these colors. Brown and gray mottles occur in some profiles.

The B2t horizon ranges to a depth of more than 80 inches. It is mottled in shades of yellow, brown, gray, and red. In some pedons the upper part of the B2t horizon is yellowish brown, strong brown, light yellowish brown, or brownish yellow and has few to common mottles in shades of yellow, brown, red, and gray, and the lower part of the B2t horizon is mottled in shades of yellow, brown, gray, or red. In some profiles the B2t horizon contains a few nodules of plinthite.

Brogdon series

The Brogdon series consists of deep, well drained soils that are moderately rapidly permeable in the B2t horizon and moderately permeable in the B' horizon. These soils formed in loamy Coastal Plain sediments. These nearly level soils are on broad, smooth ridges of the Coastal Plain. Slope is dominantly less that 1 percent but ranges to as much as 2 percent along drainageways.

Brogdon soils are geographically closely associated with Dothan, Clarendon, Fuquay, and Pocalla soils. Dothan, Fuquay, and Pocalla soils are on similar landscapes at about the same elevation, and Clarendon soils are on slightly lower lying landscapes. Dothan and Clarendon soils do not have a bisequal profile. Fuquay and Pocalla soils have an arenic A horizon.

Typical pedon of Brogdon sand, 0 to 2 percent slopes, about 3.5 miles north from Lake View on South Carolina Secondary Highway 30, and 400 feet west of road.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sand; single grained; loose; few fine roots; slightly acid; abrupt smooth boundary.

A2—8 to 15 inches; light yellowish brown (2.5Y 6/4) sand; single grained; loose; few fine roots; few pockets of clean grains of sand; medium acid; clear smooth boundary.

B2t—15 to 36 inches; yellowish brown (10YR 5/6) sandy loam; few medium distinct pale brown (10YR 6/3) and strong brown (7.5YR 5/8) mottles; weak medium granular structure; very friable; grains of sand coated and bridged with clay; strongly acid; gradual smooth boundary.

A'2—36 to 56 inches; brownish yellow (10YR 6/6) loamy sand; common medium distinct pale brown (10YR 6/3) mottles; weak medium granular structure; very friable; few pockets and streaks of clean grains of sand; few nodules of ironstone; strongly acid; gradual smooth boundary.

B'21t—56 to 65 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8), yellowish red (5YR 4/8), and very pale brown (10YR 7/3) mottles; weak medium subangular blocky structure; friable; few fine pores; thin patchy faint clay films on faces of peds; 10 percent nodules of plinthite; strongly acid; gradual smooth boundary.

B'22t—65 to 75 inches; mottled gray (10YR 6/1), yellowish red (5YR 4/8), and yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine pores; thin patchy faint clay films on faces of peds; 15 percent nodules of plinthite; strongly acid.

Solum thickness is more than 72 inches. The A horizon is slightly acid to strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon ranges from 12 to 19 inches in thickness. The Ap horizon is brown, dark grayish brown, or dark gray and is 7 to 9 inches thick. The A2 horizon is pale brown, light yellowish brown, or yellowish brown and is 6 to 10 inches thick.

The B2t horizon is yellowish brown or brownish yellow sandy loam or sandy clay loam and is 10 to 24 inches thick. Some pedons are mottled in shades of brown and red.

The B3 horizon, where present, is light yellowish brown or brownish yellow loamy sand and is 8 to 14 inches thick.

The A'2 horizon is 10 to 21 inches of sand or loamy sand. It is yellowish brown, brownish yellow, light yellowish brown, or very pale brown and has yellowish red and pale brown mottles.

The B'2t horizon ranges from about 10 to more than 30 inches in thickness. It is light yellowish brown, yellowish brown, or brownish yellow and has mottles in shades of brown, red, and gray. In some pedons the B'2t horizon is mottled with gray, brown, and red and has plinthite content of 5 to 20 percent. Texture of these horizons is mainly sandy clay loam but range to sandy loam.

Byars series

The Byars series consists of deep, very poorly drained, slowly permeable soils that formed in clayey marine or fluvial sediments. These nearly level soils are on broad flats and in slightly depressional areas of the Coastal Plain. Slope is dominantly less than 1 percent.

Byars soils are geographically closely associated with Cantey, Smithboro, Persanti, and Coxville soils. Cantey and Coxville soils, which are on similar landscapes at about the same elevation, do not have an umbric epipedon. Smithboro and Persanti soils, which are on higher lying landscapes, are better drained.

Typical pedon of Byars loam, about 0.6 mile northwest of Oak Grove on South Carolina Highway 38, about 2.5 miles southwest on South Carolina Secondary Highway 425, and about 700 feet southwest of road:

A1—0 to 16 inches; very dark gray (10YR 3/1) loam; moderate medium granular structure; friable; many fine and medium roots; few fine and medium pores; strongly acid; clear smooth boundary.

B21tg—16 to 38 inches; gray (10YR 5/1) clay; few fine distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds and along old root channels; common fine and medium roots; common fine holes and pores; very strongly acid; clear smooth boundary.

B22tg—38 to 54 inches; gray (10YR 6/1) clay; few medium distinct yellowish brown (10YR 5/6) mottles; strong medium and coarse subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds; common fine roots; common fine holes and pores; very strongly acid; clear smooth boundary.

B23tg—54 to 60 inches; gray (10YR 6/1) clay; common medium distinct light gray (10YR 7/1) mottles; moderate medium and coarse subangular blocky structure; very firm; thick continuous distinct clay films on faces of peds; common fine roots; few fine holes and pores; very strongly acid; gradual wavy boundary.

B24tg—60 to 75 inches; mottled gray (10YR 6/1) and light gray (10YR 7/1) clay; moderate medium subangular blocky structure; very firm; thick continuous distinct clay films on faces of peds; few fine holes and pores; extremely acid.

Solum thickness is more than 60 inches. The A horizon is medium acid to very strongly acid, and the B horizon is strongly acid to extremely acid.

The A horizon is 4 to 16 inches thick. It is black or very dark gray. A few mottles in shades of brown occur in some pedons.

The B2tg horizon is more than 45 inches thick. It is dark gray, light gray, gray, or very dark gray and has few to common mottles of higher chroma in some pedons. Some pedons have few to common stains along old root channels. Some pedons have few to common flakes of mica in the lower part of the horizon. Texture is clay or silty clay.

The Cg horizon, where present, is gray or light gray sandy to clayey material.

Cantey series

The Cantey series consists of deep, poorly drained, slowly permeable soils that formed in stream deposits of clayey sediments. These nearly level soils are in low-lying areas adjacent to the Great Pee Dee River. Slope is dominantly less than 1 percent.

Cantey soils are geographically closely associated with Byars, Smithboro, and Persanti soils. Byars soils, which are on similar landscapes, have an umbric epipedon. Smithboro and Persanti soils, which are on higher lying landscapes, are better drained.

Typical pedon of Cantey loam, about 4 miles southwest of Oak Grove on dirt road that passes under Interstate Highway 95, and 200 feet east of road:

A1—0 to 6 inches; very dark gray (10YR 3/1) loam; weak medium granular structure; friable; many fine and medium roots; common fine and medium holes; very strongly acid; abrupt smooth boundary.

B21tg—6 to 15 inches; gray (10YR 5/1) clay; common medium distinct yellowish brown (10YR 5/6) mottles; strong medium subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds and in old root channels; common fine roots, holes, and pores; very strongly acid; clear smooth boundary.

B22tg—15 to 36 inches; gray (10YR 6/1) clay; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) mottles; strong medium subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds; common fine roots; few fine holes and pores; very strongly acid; gradual smooth boundary.

B23tg—36 to 50 inches; gray (10YR 6/1) clay; few medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) mottles; strong medium subangular blocky structure; very firm; thick discontinuous prominent clay films on faces of peds; few fine pores; very strongly acid; gradual smooth boundary.

B24tg—50 to 75 inches; gray (10YR 6/1) clay; few medium distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; very firm; thick discontinuous distinct clay films on faces of peds; few fine pores; very strongly acid.

Solum thickness is 60 inches or more. Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon is very dark gray or black and is 4 to 6 inches thick.

The B2tg horizon is more than 50 inches thick. Texture of the B2tg horizon is silty clay or clay. Average clay content of the upper 20 inches is 35 to 60 percent. The B2tg horizon is dark gray, gray, or light gray and has few to common mottles in varying shades of yellow, brown, red, and gray.

The B3 horizon, where present, is gray or light gray and has few to many mottles in varying shades of yellow, brown, red, and gray. Texture is sandy clay or clay.

Chastain series

The Chastain series consists of deep, poorly drained, slowly permeable soils that formed in clayey alluvial sediments. These nearly level soils are on the flood plains of Reedy Creek and Buck Swamp. Slope is dominantly less than 1 percent.

Chastain soils are geographically closely associated with Byars, Paxville, Johnston, Lumbee, Coxville, Cantey, and Johns soils. All of these soils are on similar landscapes at about the same elevation. Johns soils are better drained. Byars and Paxville soils have an umbric epipedon, and Johnston soils have a histic epipedon. Coxville and Cantey

soils are Ultisols and have a thicker solum. Lumbee soils have a fine-loamy particle size control section.

Typical pedon of Chastain loam, frequently flooded, about 3.25 miles northwest of Latta on South Carolina Secondary Highway 48, about 2.5 miles northwest on South Carolina Secondary Highway 29, southwest on dirt road about one-half mile, and about 200 feet north of road:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; very friable; many fine and medium roots; common fine and medium pores; strongly acid; clear smooth boundary.

B1g—5 to 10 inches; light brownish gray (10YR 6/2) clay loam; few coarse distinct brownish yellow (10YR 6/6) and few medium distinct dark grayish brown (10YR 4/2) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine holes; very strongly acid; gradual wavy boundary.

B21g—10 to 30 inches; gray (10YR 5/1) clay; common medium distinct yellowish brown (10YR 5/8) and few fine distinct light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; very firm; few fine roots; thin strata of fine sand; very strongly acid; gradual smooth boundary.

B22g—30 to 52 inches; gray (10YR 5/1) clay; few fine distinct yellowish brown and light gray mottles; moderate medium subangular blocky structure; very firm; thin strata of fine sand; very strongly acid; gradual wavy boundary.

Cg—52 to 72 inches; mottled light gray (10YR 6/1) and gray (10YR 5/1) sand; single grained; loose; few flakes of mica; very strongly acid.

Solum thickness ranges from 40 to 60 inches. Reaction is strongly acid or very strongly acid throughout the profile.

The A horizon is 5 to 14 inches thick. It is dark grayish brown or dark gray.

The B1g horizon, where present, is 5 to 8 inches of light brownish gray or gray with few or common mottles in shades of yellow or brown.

The B2g horizon is 30 to 48 inches thick. It is gray, dark gray, light gray, or light brownish gray. Some pedons have few to common mottles in shades of yellow, brown, or gray. Some pedons have strata of fine sand in this horizon. Texture is clay, silty clay, or clay loam.

The B3g horizon, where present, is dark gray silty clay loam mottled with light brownish gray.

The Cg horizon is light gray, light brownish gray, or gray. Some pedons have few to common mottles of higher chroma. Texture is sand, loamy sand, or sandy loam.

Chipley series

The Chipley series consists of deep, moderately well drained, rapidly permeable soils that formed in sandy Coastal Plain sediments. These nearly level soils are in broad, smooth areas of stream terraces and uplands of the Coastal Plain. Slope ranges from 0 to 2 percent.

Chipley soils are geographically closely associated with Lakeland, Blanton, Rimini, Brogdon, Johns, Lynchburg, Osier, Leon, and Rutlege soils. Lakeland, Blanton, Rimini, and Brogdon soils, which are on higher lying landscapes, are better drained. Johns and Lynchburg soils, which are on similar landscapes at about the same elevation, have an argillic horizon. Osier, Leon, and Rutlege soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Chipley sand, 0 to 2 percent slopes, about 3.5 miles northeast of Fork on South Carolina Highway 41, and 400 feet south of highway:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose; common fine roots; strongly acid; abrupt smooth boundary.

C1—9 to 17 inches; light yellowish brown (10YR 6/4) sand; few medium distinct gray (10YR 6/1) streaks along old root channels; single grained; loose; few fine roots; strongly acid; clear smooth boundary.

C2—17 to 28 inches; pale brown (10YR 6/3) sand; few medium distinct light gray (10YR 7/1) mottles; single grained; loose; very strongly acid; clear smooth boundary.

C3—28 to 35 inches; very pale brown (10YR 7/3) sand; common medium distinct light gray (10YR 7/1) and few medium distinct yellowish brown (10YR 5/8) mottles; single grained; loose; very strongly acid; clear smooth boundary.

C4g—35 to 55 inches; light gray (10YR 7/2) sand; common medium distinct brownish yellow (10YR 6/6) and few medium distinct yellowish brown (10YR 5/8) mottles; single grained; loose; very strongly acid; clear smooth boundary.

C5g—55 to 80 inches; light gray (10YR 7/1) sand; common medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid.

Texture is sand to a depth of 80 inches or more. The A horizon is medium acid or strongly acid, and the C horizon is strongly acid or very strongly acid.

The Ap or A1 horizon is very dark grayish brown, very dark gray, or dark grayish brown and is 5 to 10 inches thick.

The upper part of the C horizon is light yellowish brown yellowish brown, pale brown, brownish yellow, yellow, or very pale brown and has few to common mottles in shades of brown, yellow, or gray. Mottles with chroma of 2 or less are within 40 inches of the surface. The lower part of the C horizon is gray and has few to many mottles of higher chroma, or it is mottled with gray, brown, and yellow. Some pedons have a few streaks of gray, uncoated grains of sand along old root channels in the upper part of the C horizon.

Clarendon series

The Clarendon series consists of deep, moderately well drained, moderately slowly permeable soils that formed in loamy Coastal Plain sediments. These nearly level soils are on broad, flat areas of uplands of the Coastal Plain. Slope is dominantly less than 1 percent.

Clarendon soils are geographically closely associated with Dothan, Duplin, Lynchburg, Dunbar, Rains, and Coxville soils. Dothan soils, which are on higher lying, convex ridges, are better drained. Duplin and Dunbar soils, which are on similar landscapes at slightly lower elevations, have a clayey control section. Lynchburg, Rains, and Coxville soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Clarendon loamy sand, about three-fourths mile northeast of Sellers on U.S. Highway 301, and southeast on field road about 1,500 feet from U.S. Highway 301:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; common fine and medium roots; medium acid; clear smooth boundary.

A2—7 to 11 inches; light yellowish brown (10YR 6/4) loamy sand; few medium distinct yellowish brown (10YR 5/8) mottles; few streaks or fingers of Ap material; weak fine granular structure; very friable; few fine roots; few medium holes; strongly acid; clear smooth boundary.

B21t—11 to 18 inches; yellowish brown (10YR 5/6) sandy clay loam; few medium prominent yellowish red (5YR 5/8) mottles; few streaks of Ap material in old root channels; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine roots; common medium holes and pores; very strongly acid; gradual smooth boundary.

B22t—18 to 32 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct gray (10YR 6/1) and few medium prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine roots; common medium holes and pores; few nodules of plinthite; very strongly acid; gradual wavy boundary.

B23t—32 to 48 inches; yellowish brown (10YR 5/4) sandy clay loam; many coarse distinct gray (10YR 6/1) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine holes and pores; about 15 percent nodules of plinthite; very strongly acid; gradual wavy boundary.

B24t—48 to 62 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct gray (10YR 6/1), yellowish brown (10YR 5/4), and common medium prominent red (10R 4/6) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; about 8 percent nodules of plinthite; very strongly acid; gradual wavy boundary.

B3—62 to 72 inches; mottled brownish yellow (10YR 6/8), light gray (10YR 7/1), yellowish brown (10YR 5/4), and yellowish red (5YR 5/8) sandy loam; weak medium subangular blocky structure; friable; few nodules of plinthite; very strongly acid.

Solum thickness is more than 60 inches. The A horizon is medium acid or strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon is 6 to 16 inches thick. The Ap horizon is dark grayish brown, very dark grayish brown, dark gray, or grayish brown and is 6 to 8 inches thick. The A2 horizon is 0 to 8 inches of pale brown or light yellowish brown sandy loam or loamy sand.

The B1 horizon, where present, is 3 to 8 inches of yellowish brown, brownish yellow, or light yellowish brown sandy loam.

The B2t horizon is more than 40 inches thick. The upper part of the B2t horizon is yellowish brown and has few to common mottles in shades of brown and red. Mottles with chroma of 2 or less are within 30 inches of the surface. The lower part of the B2t horizon is yellowish brown and has few to many mottles in shades of brown, gray, and red, or it is mottled with these colors. The lower part of the B2t horizon in places is gray and has few to many mottles of higher chroma. Content of nodules of plinthite is 5 to 20 percent within 60 inches of the surface.

The B3 horizon is mottled in varying shades of yellow, brown, red, and gray, or it is gray and has few to many mottles of higher chroma. It is sandy clay, sandy clay loam, or sandy loam.

Coxville series

The Coxville series consists of deep, poorly drained, moderately slowly permeable soils that formed in clayey Coastal Plain sediments. These nearly level soils are in broad, flat, and slightly depressional areas of uplands of the Coastal Plain. Slope is dominantly less than 1 percent.

Coxville soils are geographically closely associated with Dothan, Clarendon, Duplin, Persanti, Dunbar, Lynchburg, Rains, and Pantego soils. Dothan, Clarendon, Duplin, Persanti, Dunbar, and Lynchburg soils, which are on higher lying landscapes, are better drained. In addition, Dothan, Clarendon, and Lynchburg soils have a fine-loamy control section. Pantego and Rains soils, which are on similar landscapes, have a fine-loamy control section. In addition, Pantego soils have an umbric epipedon.

Typical pedon of Coxville fine sandy loam, about 2 miles south of Dillon on South Carolina Secondary Highway 25, southwest on dirt road adjacent to railroad for about 1 mile, and 100 feet east of railroad:

A1—0 to 7 inches; very dark gray (10YR 3/1) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—7 to 14 inches; light gray (10YR 6/1) fine sandy loam; few medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; few fine holes; very strongly acid; clear smooth boundary.

B21tg—14 to 25 inches; light gray (10YR 6/1) clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; very firm; thick discontinuous distinct clay films on faces of peds and in old root channels; common fine roots; few fine holes; very strongly acid; clear smooth boundary.

B22tg—25 to 40 inches; light gray (10YR 6/1) clay; common medium distinct strong brown (7.5YR 5/8) and brown (10YR 5/3) mottles; moderate medium subangular blocky structure; very firm; thick discontinuous distinct clay films on faces of peds and in old root channels; few fine roots; few fine holes; very strongly acid; clear smooth boundary.

B23tg—40 to 62 inches; light gray (5Y 6/1) clay; few coarse prominent brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; very firm; thick discontinuous distinct clay films on faces of peds and in old root channels; few fine roots and holes; very strongly acid; clear smooth boundary.

B3g—62 to 80 inches; light gray (5Y 6/1) clay; few medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) mottles; massive; very firm; very strongly acid.

Solum thickness is more than 60 inches. The A horizon is medium acid to very strongly acid, and the B2tg horizon is strongly acid or very strongly acid.

The A horizon is 4 to 14 inches thick. The A1 or Ap horizon is very dark gray or black and is 4 to 8 inches thick. The A2 horizon, where present, is 3 to 7 inches thick and is gray or light gray.

The B1 horizon, where present, is 3 to 5 inches of grayish brown clay loam or sandy clay loam.

The B2tg horizon is more than 40 inches thick. It is gray, light gray, or grayish brown and has few to common mottles of yellowish brown, strong brown, brownish yellow, brown, yellowish red, or red. Texture is clay loam, sandy clay, or clay.

The B3g horizon, where present, is light gray or gray and has brownish mottles, or it is mottled with gray, brown, and red.

Dothan series

The Dothan series consists of deep, well drained soils that are moderately permeable in the upper part of the subsoil and moderately slowly permeable in the lower part of the subsoil, which contains nodules of plinthite. These soils formed in loamy Coastal Plain sediments. These nearly level and gently sloping soils are on broad, smooth ridges and long, narrow slopes of uplands of the Coastal Plain. Slope is dominantly less than 2 percent but ranges to as much as 6 percent along drainageways.

Dothan soils are geographically closely associated with Fuquay, Pocalla, Varina, Brogdon, Clarendon, Coxville, and Rains soils. Fuquay and Pocalla soils, which are on similar landscapes at about the same elevation, have an arenic A horizon. Varina soils, which are on similar landscapes, have a clayey control section. Brogdon soils, which are on similar landscapes, are bisequal. Clarendon, Coxville, and Rains soils, which are in lower lying areas, are more poorly drained.

Typical pedon of Dothan loamy fine sandy, 0 to 2 percent slopes, 3.25 miles west of Latta on South Carolina Secondary Highway 36, 750 feet north on field road, and 150 feet west of field road:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

A2—8 to 14 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

B21t—14 to 35 inches; yellowish brown (10YR 5/6) sandy clay loam; few medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; very strongly acid; clear smooth boundary.

B22t—35 to 44 inches; yellowish brown (10YR 5/8) sandy clay loam; few medium distinct yellowish red (5YR 4/8) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; about 5 to 10 percent nodules of plinthite; very strongly acid; clear smooth boundary.

B23t—44 to 58 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct yellowish red (5YR 4/8) and strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; about 15 percent nodules of plinthite; very strongly acid; gradual smooth boundary.

B24t—58 to 75 inches; mottled yellowish brown (10YR 5/6) and strong brown (7.5YR 5/8) sandy clay loam; common medium distinct yellowish red (5YR 5/8) and gray (10YR 6/1) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; very strongly acid.

Solum thickness is more than 70 inches. The A horizon ranges from medium acid to very strongly acid, and the Bt horizon is strongly acid or very strongly acid.

The A horizon is 7 to 16 inches thick. The Ap horizon is grayish brown, brown, or dark grayish brown and is 7 to 9 inches thick. The A2 horizon, where present, is 0 to 8 inches of pale brown or light yellowish brown loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The B1 horizon, where present, is 4 to 10 inches of yellowish brown or light yellowish brown sandy loam.

The B2t horizon is more than 50 inches thick. The upper 20 to 30 inches is yellowish brown or strong brown, and some pedons have few to common mottles of strong brown, yellowish red, or red. The lower part of the B2t horizon is mottled with varying shades of yellow, brown, red, and gray; content of nodules of plinthite is 5 to 25 percent, by volume. Texture of the upper part of the B2t horizon is sandy loam or sandy clay loam, and texture of the lower part of the B2t horizon is sandy clay loam or sandy clay.

Dunbar series

The Dunbar series consists of deep, somewhat poorly drained, moderately slowly permeable soils that formed in clayey Coastal Plain sediments. These nearly level soils are in broad, flat, low areas of uplands of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Dunbar soils are geographically closely associated with Pantego, Rains, Coxville, Lynchburg, Smithboro, Clarendon, Persanti, and Duplin soils. Pantego, Rains, and Coxville soils, which are on lower lying landscapes, are more poorly drained. Smithboro soils, which are on similar landscapes, are higher in silt content and have a more plastic and sticky subsoil. Lynchburg soils, which are on similar landscapes, have a fine-loamy control section. Clarendon, Persanti, and Duplin soils, which are on higher lying landscapes, are better drained.

Typical pedon of Dunbar fine sandy loam, about 1.5 miles northwest of Fork, about 1,100 feet north of South Carolina Highway 57, and about 700 feet from the edge of woods:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine roots; slightly acid; clear smooth boundary.

B21t—6 to 12 inches; yellowish brown (10YR 5/6) sandy clay; common medium distinct yellowish brown (10YR 5/4) and few fine yellowish red and light brownish gray mottles; moderate medium subangular blocky structure; firm; few medium roots; few fine holes and pores; thin patchy faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22tg—12 to 28 inches; mottled gray (10YR 6/1), strong brown (7.5YR 5/8), red (2.5YR 4/8), and yellowish brown (10YR 5/8) clay; moderate medium subangular blocky structure; firm; few fine roots; few fine holes and pores; thin continuous distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—28 to 40 inches; gray (10YR 6/1) clay; common medium prominent red (2.5YR 4/8) and common medium distinct yellowish brown (10YR 5/6, 10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few fine holes and pores; thin continuous distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—40 to 66 inches; mottled light gray (10YR 7/1) and yellowish brown (10YR 5/8) clay; many medium prominent dark red (10R 3/6) and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; few fine holes; thin patchy faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

Cg—66 to 80 inches; light gray (10YR 7/1) clay; common medium distinct brownish yellow (10YR 6/6) and red (10R 4/6) mottles; massive; very firm; very strongly acid.

Solum thickness ranges from 66 to more than 72 inches. The A horizon is slightly acid to strongly acid. The B and C horizons are strongly acid or very strongly acid.

The A1 or Ap horizon is dark gray or dark grayish brown and is 5 to 12 inches thick.

The B1 horizon, where present, ranges from 4 to 6 inches in thickness. It is pale brown, light yellowish brown, or brown sandy clay loam and has mottles in shades of brown and gray.

The B2t horizon is 44 to 60 inches thick. Texture is clay loam, sandy clay, or clay. The upper part of the B2t horizon is yellowish brown or brownish yellow and has few to many mottles of varying shades of gray, red, yellow, and brown or it is mottled yellow, brown, red, and gray. The lower part of the B2t horizon is dominantly gray and has common to many mottles of red, yellow, and brown.

The B3g horizon, where present, is 12 to 14 inches thick; it is dominantly gray and has common to many mottles of varying shades of red, yellow, and brown. Texture is sandy clay or clay.

The Cg horizon is dominantly gray and has few to common mottles in varying shades of red, yellow, brown, and gray.

Duplin series

The Duplin series consists of deep, moderately well drained, moderately slowly permeable soils that formed in clayey Coastal Plain sediments. These nearly level soils are on broad, flat areas of uplands of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent but ranges to as much as 2 percent.

Duplin soils are geographically closely associated with Varina, Dothan, Persanti, Clarendon, Dunbar, and Coxville soils. Varina and Dothan soils, which are on higher lying landscapes, are better drained. Persanti soils, which are on similar landscapes, have more silt throughout the profile. Clarendon soils, which are on similar landscapes, have a fine-loamy control section. Dunbar and Coxville soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Duplin fine sandy loam, 0 to 2 percent slopes, about 4 miles east of Dillon on South Carolina

Highway 9, 3 miles south on South Carolina Secondary Highway 34, and 500 feet north of highway:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

B21t—8 to 18 inches; yellowish brown (10YR 5/4) clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; common fine pores; thin patchy faint clay films on faces of peds and along old root channels; strongly acid; clear smooth boundary.

B22t—18 to 28 inches; yellowish brown (10YR 5/8) clay loam; common medium distinct yellowish red (5YR 4/8) and yellowish brown (10YR 5/4) mottles and few fine faint light brownish gray mottles; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; thin patchy faint clay films on faces of peds and along old root channels; very strongly acid; clear smooth boundary.

B23t—28 to 42 inches; mottled yellowish brown (10YR 5/8) and yellowish red (5YR 5/8) clay; common medium distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; very firm; common fine pores; thin discontinuous faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24t—42 to 51 inches; brownish yellow (10YR 6/8) clay; common medium distinct red (2.5YR 5/6), gray (10YR 6/1), and light brownish gray (10YR 6/2) mottles and few medium prominent dark red (2.5YR 3/6) mottles; moderate medium subangular blocky structure; very firm; common fine and medium pores; thin discontinuous faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

B25t—51 to 70 inches; brownish yellow (10YR 6/8) clay; common medium distinct gray (10YR 6/1) and red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; very firm; few fine and medium pores; thin discontinuous faint clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3g—70 to 80 inches; gray (10YR 6/1, 10YR 5/1) clay; common medium distinct brownish yellow (10YR 6/8) and red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; few fine and medium pores; very strongly acid.

Solum thickness ranges from 60 to more than 72 inches. The A horizon is slightly acid to strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon is commonly 7 to 8 inches thick, but ranges to as much as ll inches in thickness. The Ap or A1 horizon is grayish brown or dark grayish brown and is 7 or 8 inches thick. The A2 horizon, where present, is 2 to 4 inches of light brownish gray or pale brown loamy fine sand or sandy loam.

The B2t horizon is 39 to more than 60 inches thick. Texture of the B2t horizon is clay loam, sandy clay, or clay. The upper part of the B2t horizon is commonly yellowish brown or brownish yellow and has, in places, few to common mottles of brown, gray, and red. Mottles with chroma of 2 or less occur within 30 inches of the surface. The lower part of the B2t horizon is highly mottled with varying shades of yellow, brown, gray, and red.

The B3 horizon is highly mottled with varying shades of gray, yellow, brown, and red. Texture of the B3 horizon is sandy clay loam or clay.

Faceville series

The Faceville series consists of deep, well drained, moderately permeable soils that formed in clayey Coastal Plain sediments. These nearly level and gently sloping soils are in broad, smooth areas and on narrow ridges of uplands of the Coastal Plain. Slope is dominantly less than 4 percent but ranges to as much as 6 percent along drainageways.

Faceville soils are geographically closely associated with Varina, Dothan, Orangeburg, Duplin, Dunbar, and Coxville soils. In Varina and Dothan soils, which are on similar landscapes, content of nodules of plinthite within 60 inches of the surface is more than 5 percent. Varina and Dothan soils also have a yellowish brown subsoil. Orangeburg soils, which are on similar landscapes, have a fine-loamy control section. Duplin, Dunbar, and Coxville soils, which are on lower lying landscapes, are more poorly drained.

Tyical pedon of Faceville loamy fine sand, 0 to 2 percent slopes, about 4.5 miles northeast of Little Rock, about 0.3 mile southeast of intersection of South Carolina Secondary Highways 62 and 23, and 75 feet east of field road:

Ap—0 to 7 inches; grayish brown (10YR 5/2) loamy fine sand; weak fine granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

B1—7 to 10 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; common fine roots; many fine and medium pores; strongly acid; clear smooth boundary.

B21t—10 to 25 inches; red (2.5YR 4/6) clay; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; common fine roots; many fine and medium pores; strongly acid; gradual wavy boundary.

B22t—25 to 42 inches; red (2.5YR 4/8) clay; moderate medium subangular blocky structure; friable; thin continuous distinct clay films on faces of peds; common fine and medium pores; very strongly acid; gradual wavy boundary.

B23t—42 to 50 inches; yellowish red (5YR 5/6) clay; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine pores; strongly acid; gradual wavy boundary.

B24t—50 to 60 inches; yellowish red (5YR 5/6) clay; few fine and medium distinct red (2.5YR 4/6) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; thin patchy faint clay films on faces of peds; few fine nodules of plinthite; very strongly acid; gradual wavy boundary.

B25t—60 to 75 inches; yellowish red (5YR 5/6) clay; common or many medium distinct red (2.5YR 4/6) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; thin patchy faint clay films on faces of peds; few fine nodules of plinthite; very strongly acid.

Solum thickness is more than 65 inches. The soil is strongly acid or very strongly acid throughout.

The Ap horizon is grayish brown, dark yellowish brown, or brown and is 5 to 9 inches thick.

The B1 horizon, where present, is 3 to 4 inches thick.

The B2t horizon is clay loam or clay and is more than 40 inches thick. The upper part of the B2t horizon is red or yellowish red, and some pedons have few to common mottles in shades of red or brown. The lower part of the B2t horizon is yellowish red or red and has mottles in shades of red or brown. Some pedons are mottled strong brown, yellowish red, red, and dark red in the lower part of the B2t horizon.

The B3 horizon, where present, is yellowish red or is mottled in shades of red and brown. Some pedons are mottled in shades of red, brown, and gray.

A few nodules of plinthite occur in the lower part of the B2t or B3 horizon in some pedons.

Fuquay series

The Fuquay series consists of deep, well drained soils. These soils are moderately permeable in the upper part of the subsoil and slowly permeable in the lower part.

They formed in loamy Coastal Plain sediments. These nearly level to sloping soils are on broad, smooth ridges and narrow slopes parallel to streams and drainageways of uplands of the Coastal Plain. Slope is dominantly less than 6 percent but ranges to as much as 10 percent along drainageways.

Fuquay soils are geographically closely associated with Dothan, Brogdon, Varina, Pocalla, Blanton, and Lakeland soils. Blanton and Lakeland soils, which are on similar landscapes, do not have nodules of plinthite in the profile. Pocalla soils, which are on similar landscapes, are bisequal. Dothan, Brogdon, and Varina soils, which are on similar landscapes, do not have an arenic surface layer.

Typical pedon of Fuquay sand, 0 to 6 percent slopes, about 3.5 miles southeast of Oak Grove on South Carolina Highway 38, and about 1,400 feet south of highway:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.

A2—9 to 30 inches; very pale brown (10YR 7/4) sand; weak fine granular structure; very friable; few fine roots; medium acid; clear smooth boundary.

B21t—30 to 42 inches; yellowish brown (10YR 5/8) sandy clay loam; few medium faint light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; few thin patchy faint clay films on faces of peds; few small pebbles; very strongly acid; clear smooth boundary.

B22t—42 to 54 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct strong brown (7.5YR 5/6), gray (10YR 6/1), and few medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; few thin patchy faint clay films on faces of peds; about 5 percent nodules of plinthite; very strongly acid; clear smooth boundary.

B23t—54 to 65 inches; mottled gray (10YR 6/1), yellowish brown (10YR 5/6), and yellowish red (5YR 4/8) sandy clay loam; weak medium subangular blocky structure; friable; few thin patchy faint clay films on faces of peds; about 10 percent nodules of plinthite; very strongly acid; gradual wavy boundary.

B3—65 to 75 inches; mottled gray (10YR 6/1) and yellowish red (5YR 4/8) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; about 5 percent nodules of plinthite; very strongly acid.

Solum thickness is more than 80 inches. The A horizon is very strongly acid to medium acid, and the B horizon is strongly acid or very strongly acid.

The A horizon is 22 to 38 inches thick. The Ap or A1 horizon is dark gray, dark grayish brown, or grayish brown and is 6 to 9 inches thick. The A2 horizon is pale brown, very pale brown, light yellowish brown, or yellowish brown and is 14 to 26 inches thick. A few hard nodules of sesquioxide are on the surface and throughout the A horizon.

The B1 horizon, where present, is 3 to 9 inches of brownish yellow sandy loam.

The B2t horizon ranges from 30 to more than 50 inches in thickness. The upper part of the B2t horizon is yellowish brown or strong brown. Nodules of plinthite increase in abundance from the upper part of the B2t horizon downward. The lower part of the B2t horizon is mottled with varying shades of yellow, brown, red, and gray. Content of nodules of plinthite is 5 to 15 percent, by volume, in the lower part of the B2t horizon. These nodules of plinthite are most numerous at a depth of 50 to 60 inches.

The B3 horizon, where present, is 8 to 15 inches thick. It is mottled with varying shades of red, brown, and gray. It is sandy clay loam.

Johns series

The Johns series consists of deep, somewhat poorly drained to moderately well drained, moderately permeable soils that formed in fluvial or marine deposits of coarse to medium texture. These nearly level soils are on stream terraces of the Coastal Plain. Slope is dominantly less than 1 percent.

Johns soils are geographically closely associated with Kenansville, Persanti, Smithboro, Cantey, Lumbee, and Paxville soils. Persanti and Kenansville soils, which are on higher lying landscapes, are better drained. Smithboro soils, which are on similar landscapes at slightly higher elevations, have a clayey control section. Lumbee, Paxville, and Cantey soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Johns loamy sand, about 2.0 miles northeast of Fork on South Carolina Highway 41, 3,300 feet southeast of highway, and 400 feet south of the Little Pee Dee River:

Ap—0 to 9 inches; very dark gray (10YR 3/1) loamy sand; weak fine and medium granular structure; very friable; common fine roots; strongly acid; abrupt smooth boundary.

A2—9 to 17 inches; light yellowish brown (10YR 6/4) loamy sand; few medium faint pale brown (10YR 6/3) and brownish yellow (10YR 6/6) mottles; weak fine and medium granular structure; very friable; few fine roots and holes; strongly acid; clear smooth boundary.

B21t—17 to 26 inches; yellowish brown (10YR 5/4) sandy clay loam; few medium distinct gray (10YR 6/1) and brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine roots and holes; very strongly acid; clear smooth boundary.

B22t—26 to 35 inches; yellowish brown (10YR 5/4) sandy clay loam; common medium distinct light gray (10YR 7/1) and yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; very strongly acid; clear smooth boundary.

B3g—35 to 38 inches; light gray (10YR 7/1) and brownish yellow (10YR 6/6) sandy loam; weak fine and medium granular structure; very friable; very strongly acid; clear smooth boundary.

IICg—38 to 80 inches; light gray (10YR 7/1) sand; common medium distinct brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid.

Solum thickness ranges from 25 to 39 inches. The A horizon is medium acid or strongly acid, and the B and IICg horizons are strongly acid or very strongly acid.

The A horizon ranges from 7 to 17 inches in thickness. The Ap or A1 horizon is very dark gray, very dark grayish brown, dark gray, or dark grayish brown and is 5 to 9 inches thick. The A2 horizon is pale brown, light yellowish brown, or yellowish brown loamy sand or sandy loam and is 4 to 8 inches thick.

The B1 horizon, where present, is 4 to 7 inches of brownish yellow or yellowish brown sandy loam.

The B2t horizon is 13 to 27 inches thick. The upper part of the B2t horizon is yellowish brown, brownish yellow, or light yellowish brown, and in some pedons it has common mottles in varying shades of gray, yellow, or brown. The lower part of the B2t horizon is yellowish brown, light yellowish brown, or gray and has common to many mottles of gray, brown, yellow, or yellowish red.

The B3 horizon is 3 to 9 inches thick. It is gray or brown and has mottles of yellowish brown, gray, or strong brown. It is sandy loam or loamy sand.

Depth to the IIC horizon is 28 to 39 inches. This horizon is light gray, white, or gray and is mottled with varying shades of brown or yellow. Texture is loamy sand or sand.

Johnston series

The Johnston series consists of deep, very poorly drained soils that are moderately rapidly permeable in the A horizon and rapidly permeable in the C horizon. These soils formed in stream deposits of loamy, stratified fluvial or marine sediments. These nearly level soils are on flood plains along the Little Pee Dee and Lumber Rivers. They are saturated with water from November to June. Slope is dominantly less than 1 percent.

Johnston soils are geographically closely associated with Rutlege, Paxville, and Osier soils. Rutlege, Paxville, and Osier soils, which are on similar landscapes, have a thinner black A horizon than Johnston soils. In addition, Paxville soils have an argillic horizon, and Rutlege and Osier soils have a sandy control section.

Typical pedon of Johnston loam, 2.5 miles northeast of Fork on South Carolina Highway 41, and 600 feet south of highway:

A11—0 to 28 inches; black (10YR 2/1) loam; massive; friable; common fine and medium roots; very strongly acid; clear smooth boundary.

A12—28 to 40 inches; very dark gray (10YR 3/1) fine sandy loam; massive; friable; common fine roots; very strongly acid; clear smooth boundary.

Cg—40 to 65 inches; light brownish gray (10YR 6/2) loamy sand; single grained; loose; few pockets of fine sandy loam; very strongly acid.

Reaction is strongly acid or very strongly acid throughout.

The A horizon is 28 to 48 inches thick. It is black, very dark gray, or very dark grayish brown. Texture is loam, sandy loam, or fine sandy loam.

The C horizon is light brownish gray, grayish brown, dark grayish brown, or gray. Texture is loamy sand or sand. In some pedons, it is stratified; textures of the individual strata range from fine sandy loam to sand.

Kenansville series

The Kenansville series consists of deep, well drained, moderately rapidly permeable soils that formed in loamy sediments on stream terraces of the Coastal Plain. These nearly level to gently sloping soils are on the higher elevations of stream terraces. Slope is dominantly less than 2 percent but ranges to as much as 4 percent along drainageways.

Kenansville soils are geographically closely associated with Lakeland, Chipley, and Johns soils. Lakeland and Chipley soils, which are on similar landscapes, are sandy throughout. Johns soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Kenansville sand, 0 to 4 percent slopes, about one-half mile northeast of entrance to Little Pee Dee State Park, and about 100 feet east of South Carolina Secondary Highway 22:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sand; weak medium granular structure; very friable; many fine and medium roots; medium acid; abrupt smooth boundary.

A2—8 to 24 inches; pale brown (10YR 6/3) sand; weak medium granular structure; very friable; few fine roots; medium acid; gradual wavy boundary.

B2t—24 to 36 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few fine roots; grains of sand coated and bridged with clay; very strongly acid; gradual wavy boundary.

B3—36 to 46 inches; brownish yellow (10YR 6/6) loamy sand; weak medium granular structure; very friable; few fine roots; most grains of sand coated and bridged with clay; very strongly acid; gradual wavy boundary.

C1—46 to 60 inches; brownish yellow (10YR 6/6) sand; common medium distinct light gray (10YR 7/2) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

C2—60 to 72 inches; light yellowish brown (10YR 6/4) sand; common medium distinct very pale brown (10YR 7/3) mottles; single grained; loose; very strongly acid.

Solum thickness ranges from 42 to 52 inches. Reaction is medium acid to very strongly acid throughout.

The A horizon ranges from 22 to 28 inches in thickness. The Ap horizon is dark grayish brown or brown and is 6 to 9 inches thick. The A2 horizon is strong brown, pale brown, or light yellowish brown and is 14 to 20 inches thick. The A3 horizon, where present, is 2 to 5 inches of yellowish brown or strong brown loamy sand.

The B2t horizon is yellowish brown or strong brown and is 12 to 16 inches thick.

The B3 horizon is brownish yellow, yellowish brown, or strong brown and is 4 to 12 inches thick.

The C horizon is brownish yellow, very pale brown, light yellowish brown, or yellowish brown and has mottles in varying shades of gray and brown.

Lakeland series

The Lakeland series consists of deep, excessively drained, very rapidly permeable soils that formed in thick, sandy Coastal Plain sediments. These nearly level to sloping soils are on broad, smooth ridges and narrow, irregular slopes parallel to streams and drainageways of stream terraces and uplands of the Coastal Plain. They are excessively droughty in summer. Slope is dominantly less than 4 percent but ranges to as much as 10 percent along drainageways.

Lakeland soils are geographically closely associated with Blanton, Fuquay, Pocalla, Kenansville, Chipley, Rutlege, Osier, and Rains soils. Blanton, Fuquay, Pocalla, and Kenansville soils, which are on similar landscapes, have a Bt horizon. Chipley, Rutlege, Osier, and Rains soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Lakeland sand, 0 to 6 percent slopes, about 4.5 miles southeast of Dillon and 3.25 miles north of Floydale, 3,400 feet southeast of intersection of South Carolina Secondary Highway 44 and rural dirt road, and about 1,150 feet northeast of Pee Dee Church:

Ap—0 to 8 inches; dark brown (10YR 4/3) sand; single grained; loose; many fine medium and large roots; few clean grains of sand; medium acid; abrupt smooth boundary.

C1—8 to 22 inches; brownish yellow (10YR 6/6) sand; single grained; loose; common fine roots; few or common clean grains of sand; medium acid; gradual wavy boundary.

C2—22 to 50 inches; strong brown (7.5YR 5/6) sand; single grained; loose; common fine roots; few clean grains of sand; strongly acid; gradual wavy boundary.

C3—50 to 61 inches; reddish yellow (7.5YR 6/6) sand; single grained; loose; few fine roots; common clean grains of sand; strongly acid; gradual wavy boundary.

C4—61 to 89 inches; very pale brown (10YR 7/4) sand; single grained; loose; many clean grains of sand; medium acid.

Texture of the soil ranges from medium sand to fine sand throughout the profile. Reaction ranges from medium acid to very strongly acid throughout.

Content of silt plus clay in the 10- to 40-inch control section ranges from 5 to 10 percent. Depth of the sand exceeds 80 inches.

The A horizon is very dark grayish brown, dark grayish brown, grayish brown, or dark brown and is 5 to 8 inches thick.

The upper part of the C horizon is commonly yellowish brown, brownish yellow, strong brown or reddish yellow. The lower part is reddish yellow, brownish yellow, yellow, light yellowish brown, or very pale brown. Colors commonly become lighter or paler with depth in the lower part of the C horizon, and some pedons have few to common mottles in shades of brown.

Leon series

The Leon series consists of deep, poorly drained, moderately to moderately rapidly permeable soils that formed in sandy marine sediments of the Coastal Plain. These nearly level soils are in broad, flat areas of flatwoods and river terraces of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent but ranges to as much as 2 percent.

Leon soils are geographically closely associated with Lakeland, Chipley, Paxville, Osier, Rutlege, Lumbee, and Lynn Haven soils. Lakeland and Chipley soils, which are on higher lying landscapes, are better drained. The other associated soils are on lower lying landscapes. Paxville and Lumbee soils have a fine-loamy control section. Osier and Rutlege soils do not have a Bh horizon. Lynn Haven soils have an umbric epipedon.

Typical pedon of Leon sand, 0 to 2 percent slopes, 3.0 miles east of Dillon on South Carolina Highway 9, 6,000 feet south on South Carolina Secondary Highway 44, and 200 feet east of road:

A1—0 to 6 inches; black (10YR 2/1) sand; common clean white sand grains; weak medium granular structure; very friable; many fine and medium roots; few fine and medium pores; very strongly acid; clear smooth boundary.

A2—6 to 20 inches; light gray (10YR 6/1) sand; few medium distinct dark gray (10YR 4/1) streaks; single grained; loose; common fine and medium roots; very strongly acid; clear smooth boundary.

B21h—20 to 32 inches; black (10YR 2/1) sand; weak medium subangular blocky structure; friable; weakly cemented; few fine roots; grains of sand coated with organic matter; very strongly acid; gradual smooth boundary.

B22h—32 to 44 inches; black (5YR 2/1) sand; weak medium subangular blocky structure; friable; weakly cemented; grains of sand coated with organic matter; very strongly acid; gradual smooth boundary.

B23h—44 to 60 inches; black (10YR 2/1) sand; weak medium subangular blocky structure; friable; weakly cemented; very strongly acid.

The soils are sand to a depth of 80 inches or more. Reaction is strongly acid to extremely acid throughout the profile.

The A horizon ranges from 10 to 28 inches in thickness. The A1 horizon is black or very dark gray and is 4 to 6 inches thick. The A2 horizon is light gray, gray, light brownish gray, or white and is 5 to 24 inches thick. Some pedons have dark gray streaks in this horizon.

The B2h horizon ranges from 11 to 46 inches in thickness. It is black, dark brown, or dark reddish brown, and some pedons have gray or light brownish gray streaks or tongues. In some pedons the B2h horizon is mottled with dark reddish brown and black. This horizon is weakly cemented and burns white upon ignition.

The B3 horizon is brown or dark brown or is mottled with these colors.

The A'2 horizon, where present, is grayish brown sand.

The B'2h horizon, where present, is dark brown sand.

Most pedons have a C horizon below the upper part of the Bh horizon. The C horizon extends to a depth of 72 inches or more. It is grayish brown, light brownish gray, gray, or light gray.

Lucy series

The Lucy series consists of deep, well drained, moderately permeable soils that formed in unconsolidated marine deposits consisting of thick beds of sandy loams and sandy clay loams. These gently sloping soils are on broad, smooth ridges of uplands of the Coastal Plain. Slope is dominantly less than 4 percent but ranges to as much as 6 percent along drainageways.

Lucy soils are geographically closely associated with Orangeburg, Dothan, Fuquay, and Blanton soils. All of the associated soils are on similar landscapes. Orangeburg and Dothan soils do not have an arenic epipedon. In Dothan and Fuquay soils, content of nodules of plinthite within 60 inches of the surface is more than 5 percent. Blanton soils have a grossarenic epipedon.

Typical pedon of Lucy sand, 2 to 6 percent slopes, about 2.75 miles east of Dillon on South Carolina Highway 9, about 6.0 miles northeast on South Carolina Secondary Highway 30, and about 500 feet north of road.

Ap—0 to 8 inches; brown (10YR 5/3) sand; weak fine granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

A21—8 to 20 inches; brownish yellow (10YR 6/6) sand; few medium faint yellowish brown (10YR 5/6) mottles; weak fine granular structure; very friable; common fine roots; pockets of clean sand; strongly acid; gradual smooth boundary.

A22—20 to 26 inches; brownish yellow (10YR 6/8) sand; few medium distinct strong brown (7.5YR 5/6) mottles; weak fine granular structure; very friable; common fine roots; pockets of clean sand; strongly acid; clear smooth boundary.

B21t—26 to 60 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—60 to 72 inches; red (2.5YR 4/6) sandy clay loam; few medium faint yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; strongly acid.

Solum thickness is more than 60 inches. The A horizon is medium acid or strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon ranges from 22 to 36 inches in thickness. The Ap or A1 horizon is brown, grayish brown, dark grayish brown, or dark brown and is 5 to 9 inches thick. The A2 horizon is sand or loamy sand and is 14 to 25 inches thick. It is yellowish brown, brownish yellow, pale brown, or light yellowish brown. The A3 horizon, where present, is 6 to 8 inches of brown or reddish yellow loamy sand.

The B1 horizon, where present, is 4 to 12 inches of strong brown sandy loam.

The B2t horizon is 30 to more than 50 inches thick. It is red or yellowish red and has a few mottles in shades of brown in the lower part of the B2t horizon in some pedons.

Lumbee series

The Lumbee series consists of deep, poorly drained, moderately permeable soils that formed in loamy marine deposits of the Coastal Plain. These nearly level soils are

on stream terraces of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Lumbee soils are geographically closely associated with Johns, Paxville, Rutlege, Chipley, and Osier soils. Johns and Chipley soils, which are on higher lying landscapes, are better drained. Paxville and Rutlege soils, which are on lower lying landscapes, are more poorly drained. Osier soils, which are on similar landscapes, have a sandier subsoil.

Typical pedon of Lumbee sandy loam, about 5 miles south of Lake View on South Carolina Secondary Highway 55, 2,000 feet west on dirt road, 4,000 feet northwest on field road, 1,500 feet west on woods road, 100 feet northwest of road, and 300 feet east of Little Pee Dee River:

A1—0 to 6 inches; black (10YR 2/1) sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—6 to 12 inches; gray (10YR 5/1) sandy loam; weak fine granular structure; very friable; many fine and medium roots; few fine holes; very strongly acid; clear smooth boundary.

B21tg—12 to 25 inches; gray (10YR 5/1) sandy clay loam; few medium distinct yellowish brown (10YR 5/6) and few medium distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; few thin patchy faint clay films in pores; few fine roots, holes, and pores; very strongly acid; clear smooth boundary.

B22tg—25 to 32 inches; gray (10YR 5/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/8) and few medium faint dark gray (10YR 4/1) mottles; weak medium subangular blocky structure; friable; few thin patchy faint clay films in pores; few fine holes and pores; very strongly acid; clear smooth boundary.

B3g—32 to 37 inches; grayish brown (10YR 5/2) sandy loam; common medium distinct dark grayish brown (10YR 4/2) mottles; weak medium granular structure; very friable; very strongly acid; clear smooth boundary.

IICg—37 to 75 inches; light brownish gray (10YR 6/2) sand; single grained; loose; few flakes of mica; very strongly acid.

Solum thickness ranges from 28 to 40 inches. The A horizon is medium acid through very strongly acid, and the B2tg and IICg horizons are strongly acid or very strongly acid.

The A horizon ranges from 8 to 14 inches in thickness. The A1 or Ap horizon is black or very dark gray and is 5 to 8 inches thick. The A2 horizon is gray, light gray, or light brownish gray sandy loam, loamy fine sand, or loamy sand and is 2 to 9 inches thick.

The B1 horizon, where present, is light gray sandy loam that has gray mottles and is as much as 8 inches thick.

The B2tg horizon is 12 to 21 inches thick. It is gray, light gray, or light brownish gray and has few to common mottles of brownish yellow, strong brown, yellowish brown, or brown in most pedons.

The B3g horizon, where present, is as much as 8 inches of sandy loam or loamy sand. It is grayish brown, light gray, or gray. Some pedons have few to common mottles of higher chroma.

The IICg horizon is light gray, gray, or light brownish gray and has brown, dark gray, or yellowish brown mottles. Texture is sand or loamy sand. Some pedons have a few flakes of mica in this horizon.

Lynchburg series

The Lynchburg series consists of deep, somewhat poorly drained, moderately permeable soils that formed in loamy Coastal Plain sediments. These soils are in low lying areas, generally shallow depressional areas or broad interstream divides of uplands of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Lynchburg soils are geographically closely associated with Dothan, Clarendon, Dunbar, Coxville, Rains, and Pantego soils. Dothan and Clarendon soils, which are on higher lying landscapes, are better drained. Dunbar soils, which are on similar landscapes, have a clayey control section. Coxville, Rains, and Pantego soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Lynchburg sandy loam, about 2.75 miles east of Dillon on South Carolina Highway 9, about 3.0 miles northeast on South Carolina Secondary Highway 30, about 0.5 mile north on South Carolina Secondary Highway 486, and 200 feet east of road:

Ap—0 to 7 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

B21t—7 to 12 inches; pale brown (10YR 6/3) sandy clay loam; common medium distinct yellowish brown (10YR 5/4) and common medium faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; common fine pores; thin patchy faint clay films on faces of peds; strongly acid; clear smooth boundary.

B22tg—12 to 21 inches; gray (10YR 6/1) sandy clay loam; many medium distinct yellowish brown (10YR 5/6), common medium faint pale brown (10YR 6/3), and few fine prominent yellowish red mottles; weak medium subangular blocky structure; friable; common fine pores; thin patchy faint clay films on faces of peds; very strongly acid; clear smooth boundary.

B23tg—21 to 37 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; common fine pores; thin patchy faint clay films on faces of peds; very strongly acid; clear smooth boundary.

B24tg—37 to 55 inches; gray (10YR 6/1) sandy clay loam; few medium distinct yellowish brown (10YR 5/6, 10YR 5/4) mottles; weak medium subangular blocky structure; friable; common fine pores; thin patchy faint clay films on faces of peds; very strongly acid; gradual smooth boundary.

B3g—55 to 72 inches; gray (10YR 6/1) sandy clay; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/8) mottles, and few fine distinct yellow, brownish yellow, and red mottles; weak coarse subangular blocky structure; firm; few fine pores; very strongly acid.

Solum thickness ranges from 60 to more than 72 inches. The A horizon is slightly acid through strongly acid, and the B horizon is strongly acid through extremely acid.

The A horizon ranges from 6 to 14 inches in thickness. The Ap or A1 horizon is dark gray, very dark gray, or dark grayish brown and is 6 to 8 inches thick. The A2 horizon, where present, is as much as 6 inches of pale brown, grayish brown, or brown loamy sand or sandy loam.

The B2t horizon is 40 to more than 60 inches thick. The upper part of the B2t horizon is yellowish brown, light yellowish brown, or pale brown and has mottles in varying shades of red, yellow, gray, and brown. The lower part of the B2t horizon has dominant gray colors and common to many mottles of red, yellow, and brown. Texture of the B2t horizon is sandy clay in some pedons at a depth of 40 inches or more.

The B3 horizon is sandy clay, clay loam, or sandy clay loam and is 12 to 18 inches thick.

Lynn Haven series

The Lynn Haven series consists of deep, poorly drained, moderately to moderately rapidly permeable soils that formed in sandy marine deposits of the Coastal

Plain. These nearly level soils are in broad, flat areas of flatwoods of the Coastal Plain and on river terraces. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Lynn Haven soils are geographically closely associated with Lakeland, Chipley, Paxville, Osier, Rutlege, Lumbee, and Leon soils. Lakeland and Chipley soils, which are on higher lying landscapes, are better drained. All other associated soils are on similar landscapes. Paxville and Lumbee soils have a fine-loamy control section. Osier and Rutlege soils do not have a Bh horizon. Leon soils have an ochric epipedon.

Typical pedon of Lynn Haven sand, about 6,000 feet northeast of Floydale on South Carolina Secondary Highway 45, and 400 feet north of road:

A1—0 to 13 inches; black (10YR 2/1) sand; common clean grains of sand; weak medium granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—13 to 18 inches; light gray (10YR 6/1) sand; single grained; loose; few fine roots; very strongly acid; abrupt smooth boundary.

B21h—18 to 32 inches; dark reddish brown (5YR 3/2) sand; weak medium granular structure; friable; few fine roots and holes; grains of sand coated with organic matter; weakly cemented; very strongly acid; gradual smooth boundary.

B22h—32 to 48 inches; black (5YR 2/1) sand; weak medium granular structure; friable; few fine holes; grains of sand coated with organic matter; weakly cemented; very strongly acid; gradual smooth boundary.

B23h—48 to 65 inches; dark brown (7.5YR 3/2) sand; single grained; loose; grains of sand partially coated with organic matter; very strongly acid; clear smooth boundary.

C—65 to 80 inches; gray (10YR 5/1) sand; single grained; loose; very strongly acid.

These soils are sandy to a depth of 80 inches or more. They are strongly acid or very strongly acid throughout.

The A horizon ranges from 16 to 28 inches in thickness. The A1 horizon is black or very dark gray and is 12 to 14 inches thick. The A2 horizon is light gray or gray and is 3 to 16 inches thick.

Some pedons have a transitional layer about 1 inch thick between the A2 and Bh horizons.

The B2h horizon is very dark brown, dark reddish brown, dark brown, or black. Grains of sand are coated with organic matter.

The B3h horizon is brown or dark brown.

The C horizon is gray, light gray, or dark grayish brown, and some pedons have mottles in shades of brown.

McColl series

The McColl series consists of deep, poorly drained, slowly permeable soils that formed in alluvium or loamy marine deposits. These nearly level soils are in oval, depressions on uplands of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent but ranges to as much as 2 percent along the edges of the oval, depressions.

McColl series are geographically closely associated with Fuquay, Lakeland, Dothan, Faceville, Coxville, and Rains soils. Fuquay, Lakeland, Dothan, and Faceville soils, which are on higher lying landscapes, are better drained. Coxville and Rains soils, which are on lower lying landscapes, have colors of dominantly lower chroma throughout the solum; in addition, Rains soils have a fine-loamy control section. None of these soils has a fragipan.

Typical pedon of McColl loam, 3.5 miles northeast of Dillon on U.S. Highway 301, about 2,500 feet northwest on South Carolina Secondary Highway 198, about 2,500 feet southwest on dirt road along SCL Railroad, and about 200 feet northwest of railroad:

Ap—0 to 7 inches; black (10YR 2/1) loam; weak fine subangular blocky structure; friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

B21tg—7 to 14 inches; light brownish gray (2.5Y 6/2) clay; few fine distinct strong brown mottles along old root channels and few medium distinct dark gray (10YR 4/1) mottles; moderate medium subangular blocky structure; firm; thin patchy clay films along old root channels; common fine roots; common fine and medium holes and pores; some Ap material has moved into old root channels; strongly acid; clear irregular boundary.

Bx&B22tg—14 to 30 inches; 60 percent of horizon is strong brown (7.5YR 5/8) sandy clay loam; few medium distinct red (2.5YR 5/6) mottles; strong coarse prismatic structure parting to strong coarse platy; brittle; common fine and medium pores coated or filled with gray clay; about 40 percent of horizon is gray (10YR 6/1) clay; moderate medium subangular blocky structure; firm; thin patchy faint clay films along old root channels; few fine roots; few fine pores; boundary between gray and strong brown is abrupt; about 10 percent of this horizon is vertical streaks of light gray (10YR 7/1) and dark gray (10YR 4/1) clay loam 0.25 inch to 1.5 inches wide; strongly acid; gradual irregular boundary.

Bx—30 to 40 inches; strong brown (7.5YR 5/8) sandy clay; few medium distinct yellowish red (5YR 4/8) mottles; strong coarse prismatic structure parting to strong coarse platy; brittle; common fine and medium pores, some of which are coated or filled with gray clay; boundary between gray and strong brown is abrupt; few large holes; about 20 percent of horizon is vertical streaks of light gray (10YR 7/1) and dark gray (10YR 4/1) sandy clay; weak medium subangular blocky structure; firm; few fine roots; very strongly acid; gradual wavy boundary.

B3—40 to 56 inches; strong brown (7.5YR 5/8) sandy clay loam; many coarse distinct light gray (10YR 7/1) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

C—56 to 80 inches; strong brown (7.5YR 5/8) and light gray (10YR 7/1) sandy loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak medium granular structure; very friable; strongly acid.

Solum thickness ranges from 50 to 72 inches. Depth to the fragipan ranges from 12 to 28 inches. The A horizon is medium acid or strongly acid, and the B horizon is strongly acid or very strongly acid. Some pedons contain a few nodules of plinthite.

The A horizon is 5 to 14 inches thick. The A1 or Ap horizon is black or very dark gray and is 5 to 8 inches thick. The A2 horizon, where present, is 3 to 6 inches of light brownish gray sandy loam.

The B1 horizon, where present, is grayish brown sandy clay loam that is as much as 4 inches thick.

The B2tg horizon is 5 to 14 inches thick. It is gray, light brownish gray, or grayish brown and has few to common mottles in shades of yellow or brown. Texture is clay loam or clay.

The Bx horizon is 10 to 28 inches thick. It is strong brown or yellowish brown and has few to common mottles in shades of gray, brown, or red. This horizon has vertical streaks of light gray, dark gray, or grayish brown in 10 to 20 percent of the area of the horizon. Texture of the vertical streaks is clay loam, sandy clay, or sandy clay loam. The brittle matrix is strong brown, yellowish brown, or red sandy clay loam, clay loam, or sandy clay.

The B3 horizon is 14 to 24 inches thick. It is mottled in shades of brown, gray, and red, or it is strong brown or yellowish brown and has light gray or gray mottles. It contains fine flakes of mica in many pedons.

The C horizon is mottled in shades of gray, brown, and red. Some pedons contain a few small pebbles of quartz.

Orangeburg series

The Orangeburg series consists of deep, well drained, moderately permeable soils that formed in thick, loamy Coastal Plain sediments. These nearly level and gently sloping soils are on broad, smooth ridges and narrow slopes parallel to streams and drainageways of uplands of the Coastal Plain. Slope is dominantly less than 2 percent but ranges to as much as 6 percent along local drainageways.

Orangeburg soils are geographically closely associated with Dothan, Lucy, Faceville, Lynchburg, and Rains soils. Dothan soils, which are on similar landscapes, have a yellowish brown subsoil in which content of nodules of plinthite within 60 inches of the surface is more than 5 percent. Lucy soils, which are on similar landscapes, have an arenic A horizon. Faceville soils, which are on similar landscapes, have a clayey control section. Lynchburg and Rains soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Orangeburg loamy sand, 0 to 2 percent slopes, 4 miles northwest of Little Rock, about 3 miles northwest of intersection of South Carolina Highways 9 and 24, 400 feet west of South Carolina Highway 24, and 2,300 feet east of SCL Railroad:

Ap—0 to 8 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; common fine and medium roots; slightly acid; clear smooth boundary.

A2—8 to 12 inches; light yellowish brown (10YR 6/4) loamy sand; few medium distinct yellowish brown (10YR 5/6) mottles; weak fine granular structure; very friable; few fine roots; few medium pores; medium acid; clear smooth boundary.

B21t—12 to 36 inches; yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; common fine and medium roots; common fine pores; medium acid; gradual smooth boundary.

B22t—36 to 50 inches; yellowish red (5YR 5/8) sandy clay loam; common medium faint strong brown (7.5YR 5/8) and few medium distinct red (10R 4/8) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; strongly acid; gradual smooth boundary.

B23t—50 to 66 inches; strong brown (7.5YR 5/8) sandy clay loam; many medium faint yellowish red (5YR 5/8) and few medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable; patchy faint clay films on faces of peds; few nodules of plinthite; very strongly acid; gradual smooth boundary.

B24t—66 to 74 inches; mottled yellowish red (5YR 5/8) and strong brown (7.5YR 5/8) sandy clay loam; few medium distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few nodules of plinthite; very strongly acid.

Solum thickness is more than 72 inches. The A horizon ranges from slightly acid to strongly acid, and the Bt horizon is strongly acid or very strongly acid.

The A horizon is 8 to 18 inches thick. The A1 or Ap horizon is brown or dark grayish brown and is 6 to 9 inches thick. The A2 horizon is pale brown, light yellowish brown, or yellowish brown loamy sand or loamy fine sand and is 3 to 10 inches thick.

The B1 horizon, where present, is yellowish red sandy loam that is up to 5 inches thick.

The B2t horizon is more than 50 inches thick. It is yellowish red or red sandy clay loam or clay loam. Some pedons have strong brown, yellowish brown, or red mottles.

Osier series

The Osier series consists of deep, poorly drained, rapidly permeable soils that formed in recent sandy Coastal Plain sediments. These nearly level soils are in low, wet areas at the head of streams, along drainageways, and in oval depressions on the river flood plain and on uplands. They are saturated with water late in winter and early in spring. The water table is within 12 inches of the surface from November to March in most years. Slope is dominantly less than 1 percent but ranges to as much as 2 percent along drainageways.

Osier soils are geographically closely associated with Lakeland, Blanton, Chipley, Lynchburg, Rains, Pantego, Johnston, and Rutlege soils. Lakeland, Blanton, Chipley, and Lynchburg soils, which are on higher lying landscapes, are better drained; in addition, Blanton and Lynchburg soils have an argillic horizon. Rains and Pantego soils, which are on similar landscapes, have an argillic horizon; in addition, Pantego soils have an umbric epipedon. Johnston and Rutlege soils, which are on somewhat lower lying landscapes, have an umbric epipedon.

Typical pedon of Osier loamy sand, 2.75 miles east of Dillon on South Carolina Highway 9, about 5 miles northeast on South Carolina Secondary Highway 30, 0.25 mile south on South Carolina Secondary Highway 22, and 500 feet east of road:

A1—0 to 5 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

C1g—5 to 18 inches; grayish brown (10YR 5/2) sand; single grained; loose; common fine roots; very strongly acid; gradual smooth boundary.

C2g—18 to 70 inches; gray (10YR 6/1) sand; single grained; loose; very strongly acid.

The A horizon ranges from medium acid through very strongly acid, and the Cg horizon is strongly acid through very strongly acid.

The A horizon is black or very dark gray and is 4 to 6 inches thick.

The Cg horizon is gray, light gray, light brownish gray, grayish brown, or dark gray, or it is mottled with these colors. Some pedons have thin strata of loamy sand or sandy loam in the lower part of the Cg horizon at a depth of 40 inches or more.

Pantego series

The Pantego series consists of deep, very poorly drained, moderately permeable soils that formed in loamy Coastal Plain deposits. These nearly level soils are in slight depressions and at the head of streams in the uplands of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Pantego soils are geographically closely associated with Dunbar, Duplin, Clarendon, Lynchburg, Varina, Dothan, Coxville, Rains, and Rutlege soils. Dunbar, Duplin,

Clarendon, Lynchburg, Varina, and Dothan soils, which are on higher lying landscapes, do not have an umbric epipedon and are better drained than Pantego soils. In addition, in Clarendon, Varina, and Dothan soils, content of nodules of plinthite within 60 inches of the surface is more than 5 percent. Coxville, Rains, and Rutlege soils are on somewhat similar landscapes. Coxville soils have a clayey control section, Rains soils have an ochric epipedon, and Rutlege soils have a more coarsely textured subsoil.

Typical pedon of Pantego loam, about 2.75 miles east of Dillon on South Carolina Highway 9, 3.5 miles northwest on South Carolina Secondary Highway 30, 3,100 feet north on dirt road, and 800 feet north of road:

A1—0 to 12 inches; black (10YR 2/1) loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21tg—12 to 29 inches; dark gray (10YR 4/1) sandy clay loam; few fine distinct brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; common fine roots; strongly acid; clear smooth boundary.

B22tg—29 to 38 inches; gray (10YR 5/1) sandy clay loam; few fine distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine roots; very strongly acid; clear smooth boundary.

B23tg—38 to 55 inches; gray (10YR 5/1) sandy clay loam; common fine distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; very strongly acid; clear smooth boundary.

B31g—55 to 67 inches; gray (10YR 5/1) sandy clay; common medium distinct brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; very strongly acid; clear smooth boundary.

B32g—67 to 75 inches; gray (10YR 5/1) sandy clay; common medium distinct light gray (10YR 7/1) mottles; weak coarse subangular blocky structure; very strongly acid.

Solum thickness is more than 60 inches. The A horizon is strongly acid or very strongly acid, and the B horizon is strongly acid to extremely acid.

The A horizon ranges from 10 to 15 inches in thickness and is black or very dark gray.

The B2tg horizon is 40 inches thick or more. It is gray, dark gray, very dark gray, light brownish gray, or light gray sandy clay loam or clay loam and has few to common mottles in shades of brown, yellow, or gray. In some pedons the lower part of the B2tg horizon is sandy clay.

The B3g horizon, where present, is 14 to 20 inches of gray or light gray sandy clay or sandy clay loam that has few to common mottles in varying shades of brown.

Paxville series

The Paxville series consists of deep, very poorly drained, moderately permeable soils that formed in loamy marine or fluvial Coastal Plain deposits. These nearly level soils are on stream terraces and in slightly depressional areas of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Paxville soils are geographically closely associated with Johns, Lumbee, Rutlege, Johnston, and Osier soils. Johns and Lumbee soils, which are on slightly higher landscapes, do not have an umbric epipedon. Rutlege and Osier soils, which are on similar landscapes, are more sandy. Johnston soils, which are on similar landscapes, have a thicker surface horizon and a coarser textured subsoil.

Typical pedon of Paxville loam, about 2 miles northeast of Fork on South Carolina Highway 41, 3 miles west on South Carolina Secondary Highway 42, and 200 feet south of highway:

A1—0 to 13 inches; black (10YR 2/1) loam; weak fine granular structure; friable; many fine and medium roots; many fine pores; very strongly acid; clear smooth boundary.

B1—13 to 16 inches; dark gray (10YR 4/1) sandy loam; weak medium granular structure; very friable; common fine roots and pores; very strongly acid; clear smooth boundary.

B21tg—16 to 25 inches; gray (10YR 5/1) sandy clay loam; few medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine roots and pores; very strongly acid; clear smooth boundary.

B22tg—25 to 42 inches; light gray (10YR 6/1) sandy clay loam; few medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine pores; very strongly acid; clear smooth boundary.

B3g—42 to 48 inches; gray (10YR 5/1) sandy loam; common medium distinct light gray (10YR 6/1) pockets of sand; weak fine subangular blocky structure; very friable; very strongly acid; clear smooth boundary.

C1g—48 to 60 inches; mottled light gray (10YR 6/1) and gray (10YR 5/1) sand; single grained; loose; very strongly acid; gradual smooth boundary.

C2g—60 to 80 inches; grayish brown (10YR 5/2) sand; single grained; loose; very strongly acid.

Solum thickness ranges from 40 to 58 inches. The A horizon is medium acid to very strongly acid, and the B2tg and Cg horizons are strongly acid or very strongly acid.

The A horizon ranges from 10 to 18 inches in thickness and is black, very dark grayish brown, or very dark gray.

The B1 horizon, where present, is as much as 6 inches thick and is dark gray, or very dark gray.

The B2t horizon is 26 to 46 inches thick. It is very dark gray, dark gray, gray, or light gray and has few to common mottles in various shades of yellow, brown, and gray. Texture is sandy loam or sandy clay loam.

The B3 horizon, where present, is gray, light gray, or very dark grayish brown sandy loam or loamy sand that is 6 to 10 inches thick. Some pedons have streaks or pockets of clean sand, and others have a few to many small pebbles in the lower part of the B3 horizon.

The Cg horizon is gray, light gray, dark grayish brown, or grayish brown sand or loamy sand.

Persanti series

The Persanti series consists of deep, moderately well drained, slowly permeable soils that formed in unconsolidated, clayey Coastal Plain sediment. These nearly level and gently sloping soils are on broad, smooth ridges and relatively narrow slopes of old stream terraces and on the uplands of the Coastal Plain. Slope is dominantly less than 2 percent but ranges to as much as 6 percent along drainageways.

Persanti soils are geographically closely associated with Summerton, Varina, Dothan, Duplin, Dunbar, Smithboro, Cantey, and Coxville soils. Summerton, Varina, and Dothan soils, which are on higher lying landscapes, are better drained. Duplin soils, which are on similar land-

scapes, have less silt and clay in the subsoil. Dunbar, Smithboro, Cantey, and Coxville soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Persanti fine sandy loam, 0 to 2 percent slopes, about 2.0 miles northeast of Latta on U.S. Highway 301-501, about 1.5 miles southeast on South Carolina Secondary Highway 23, about 0.25 mile east on South Carolina Secondary Highway 71, and about 300 feet south of South Carolina Secondary Highway 71:

Ap—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable; common fine and medium roots; medium acid; clear smooth boundary.

B1—6 to 12 inches; yellowish brown (10YR 5/8) clay loam; few medium faint yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; common fine roots; common fine and medium holes; few fine pores; very strongly acid; clear smooth boundary.

B21t—12 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; few medium distinct yellowish red (5YR 4/6) and pale brown (10YR 6/3) mottles; strong medium subangular blocky structure; firm; thick continuous prominent clay films on faces of peds; common fine roots; few fine holes and pores; strongly acid; clear smooth boundary.

B22t—22 to 31 inches; yellowish brown (10YR 5/6) clay; common medium distinct yellowish red (5YR 4/8), light yellowish brown (10YR 6/4), and light gray (10YR 7/2) mottles; strong medium subangular blocky structure; firm; thick continuous prominent clay films on faces of peds; few fine holes and pores; strongly acid; clear smooth boundary.

B23t—31 to 42 inches; mottled light gray (10YR 7/1) and strong brown (7.5YR 5/8) clay; common medium prominent red (2.5YR 4/8) mottles; strong medium subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds; few fine and very fine pores; strongly acid; clear smooth boundary.

B24t—42 to 60 inches; mottled light gray (10YR 7/1), strong brown (7.5YR 5/6), and red (2.5YR 4/6) silty clay; strong medium subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds; few fine and very fine pores; strongly acid; clear smooth boundary.

B25t—60 to 80 inches; mottled light gray (10YR 7/1), yellowish brown (10YR 5/8), and red (2.5YR 4/6) silty clay; strong medium subangular blocky structure; very firm; thick continuous prominent clay films on faces of peds; few fine and very fine pores; very strongly acid.

Solum thickness is more than 60 inches. The A horizon is slightly acid to strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon is 4 to 10 inches thick. The Ap or A1 horizon is grayish brown, brown, or dark grayish brown and is 4 to 8 inches thick. The A2 horizon, where present, is pale brown or light yellowish brown fine sandy loam 2 to 4 inches thick.

The B1 horizon is 3 to 6 inches of yellowish brown or brownish yellow sandy clay loam or clay loam.

The B2t horizon is more than 38 inches thick. The upper part of the B2t horizon is yellowish brown or strong brown, and in some pedons it has few to common mottles in varying shades of yellow, brown, red, or gray. Mottles with chroma of 2 or less are within 30 inches of the surface. The lower part of the B2t horizon is yellowish brown, brownish yellow, or strong brown and has common to many mottles in varying shades of yellow, brown, red, or gray. Some pedons are dominantly gray in the lower part of the B2t horizon and have mottles in varying shades of brown and red. Texture is clay or silty clay.

The B3 horizon, where present, is mottled with varying shades of gray, yellow, brown, and red, or it is gray and has brown and red mottles. It is clay or clay loam.

Pocalla series

The Pocalla series consists of deep, somewhat excessively drained soils that are moderately rapidly permeable in the upper part of the subsoil and moderately permeable in the lower part. They formed in loamy Coastal Plain sediments. These nearly level soils are on broad ridges of uplands of the Coastal Plain. They are bisequal. Slope is dominantly less than 1 percent but ranges to as much as 2 percent along drainageways.

Pocalla soils are geographically closely associated with Brogdon, Blanton, Dothan, Fuquay, and Lakeland soils. All of the associated soils are on similar landscapes. Brogdon soils have a coarse-loamy control section. Blanton soils have a grossarenic A horizon. Dothan soils have a fine-loamy control section. Fuquay soils do not have a bisequal profile. Lakeland soils have an AC profile that is sandy throughout.

Typical pedon of Pocalla sand, 0 to 2 percent slopes, about 1 mile southeast of Latta on South Carolina Secondary Highway 160, one-fourth mile west on farm road under powerline, and 200 feet north of field road:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) sand; weak medium granular structure; loose; many fine roots; slightly acid; abrupt smooth boundary.

A2—8 to 28 inches; pale brown (10YR 6/3) sand; few dark yellowish brown stains along root channels; weak medium granular structure; loose; few fine roots; slightly acid; clear smooth boundary.

B2t—28 to 38 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; very friable; grains of sand coated and bridged with clay; strongly acid; gradual wavy boundary.

B3—38 to 48 inches; brownish yellow (10YR 6/6) loamy sand; weak very coarse subangular blocky structure; very friable; grains of sand coated with clay; strongly acid; gradual wavy boundary.

A'2—48 to 56 inches; brownish yellow (10YR 6/6) sand; single grained; loose; common streaks and pockets of clean grains of sand; strongly acid; gradual wavy boundary.

B'21t—56 to 66 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) and pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; about 10 percent nodules of plinthite by volume; strongly acid; gradual wavy boundary.

B'22t—66 to 80 inches; light yellowish brown (10YR 6/4) sandy clay loam; many medium distinct gray (10YR 6/1) and common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; about 20 percent nodules of plinthite by volume; strongly acid.

Solum thickness is more than 72 inches. The soil is strongly acid and very strongly acid throughout except for the A horizon in limed areas.

The A horizon is 20 to 30 inches thick. The dark grayish brown or grayish brown Ap horizon is 7 to 9 inches thick. The A2 horizon is pale brown, very pale brown, or light yellowish brown and is 11 to 21 inches thick.

The B2t horizon is yellowish brown or brownish yellow sandy loam or sandy clay loam and is 9 to 14 inches thick. Mottles in shades of brown and red occur in the lower part of the B2t horizon in some pedons.

The B3 horizon is not in some pedons.

The A'2 horizon is yellowish brown or brownish yellow sand or loamy sand and is 8 to 21 inches thick. Some pedons have mottles in shades of brown, red, and gray.

The B'2t horizon is sandy clay loam or sandy loam, and content of nodules of plinthite is 5 to 20 percent, by volume. The upper part of the B'2t horizon is brownish yellow, yellowish brown, or light yellowish brown, and few to many mottles in shades of brown, red, and gray occur in most pedons. The lower part of the B'2t horizon is mottled with shades of brown, yellow, red, and gray.

These soils contain less clay than is typical for the series and are considered to be taxadjuncts. This difference does not alter their usefulness and behavior.

Ponzer series

The Ponzer series consists of decomposed organic materials 16 to 40 inches thick over loamy mineral material. This soil is very poorly drained and moderately slowly permeable. These soils formed in fresh water from woody material. They occur in low depressions along Catfish Canal and the Little Pee Dee and Lumber Rivers and also in "Carolina bays" of the Coastal Plain. They are saturated with water from November to June during most years. Slope is dominantly less than 1 percent.

Ponzer soils are geographically closely associated with Byars, Lynn Haven, Pantego, and Rutlege soils. Ponzer soils have an organic surface layer more than 16 inches thick. All of these associated soils are on similar landscapes; they are mineral soils that have a sandy or loamy surface layer high in organic matter.

Typical pedon of Ponzer soils, 1.5 miles northeast of Sellers along U.S. Highway 301, 1 mile southeast of intersection of U.S. Highway 301 and South Carolina Highway 38; 0.5 mile north from intersection of South Carolina Highway 38 and South Carolina Secondary Highway 524, and 0.5 mile east of South Carolina Secondary Highway 524 in Catfish Creek:

Oa1—0 to 10 inches; very dark grayish brown (10YR 3/2), same rubbed, sapric material; less than 5 percent fiber when rubbed or unrubbed; moderate coarse subangular blocky structure; friable; many fine roots; extremely acid; clear smooth boundary.

Oa2—10 to 28 inches; black (N 2/0), same rubbed, sapric material; 5 percent fiber, less than 5 percent fiber when rubbed; weak medium and coarse subangular blocky structure; friable; few fine roots; common fine holes and pores; extremely acid; clear wavy boundary.

IIC1g—28 to 48 inches; very dark grayish brown (10YR 3/2) clay loam; weak medium subangular blocky structure; firm; common fine roots; very strongly acid; clear wavy boundary.

IIIC2g—48 to 72 inches; grayish brown (10YR 5/2) sand; single grained; loose; few fine pebbles of quartz; very strongly acid.

The organic horizons are extremely acid throughout except in limed areas, and the mineral horizons are strongly acid or very strongly acid.

The organic layer is 16 to 30 inches thick. Fiber content is less than 5 percent when rubbed. This material is black, very dark brown, or very dark grayish brown.

Texture of the underlying material includes clay loam, sandy clay loam, sand, loamy sand, and sandy loam. This material is very dark grayish brown, grayish brown, light brownish gray, black, dark gray, dark yellowish brown, brown, or light gray.

These soils are less sandy than is typical for the series. They have siliceous mineralogy and are considered as taxadjuncts. This difference does not alter their usefulness and behavior.

Rains series

The Rains series consists of deep, poorly drained, moderately permeable soils that formed in thick, loamy Coastal Plain sediment. These nearly level soils are in broad, flat areas; in slightly depressional areas; in oval bays; and along the head of drainageways in the Coastal Plain. They are saturated late in winter and early in spring. Slope is dominantly less than 1 percent but ranges to as much as 2 percent along drainageways.

Rains soils are geographically closely associated with Fuquay, Dothan, Clarendon, Chipley, Lynchburg, Coxville, and Pantego soils. Fuquay, Dothan, Clarendon, Chipley, and Lynchburg soils, which are on higher lying landscapes, are better drained. Coxville soils, which are on similar landscapes, have a clayey control section. Pantego soils, which are on slightly lower lying landscapes, have an umbric epipedon.

Typical pedon of Rains fine sandy loam, about 1.25 miles southeast of Hamer on South Carolina Secondary Highway 35, about 300 feet southwest on dirt road, and about 75 feet northwest of dirt road:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sandy loam; few medium distinct pale brown (10YR 6/3) mottles; weak medium granular structure; very friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

B21tg—7 to 11 inches; gray (10YR 6/1) sandy clay loam; common medium faint pale brown (10YR 6/3) and few medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds and along old root channels; common fine roots; few fine and very fine pores; old root channels filled with dark material from Ap horizon; strongly acid; clear smooth boundary.

B22tg—11 to 26 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/6) mottles, few medium distinct light yellowish brown (10YR 6/4) mottles, and few medium prominent yellowish red (5YR 4/8) mottles; moderate medium subangular blocky structure; friable; thin patchy faint clay films on faces of peds; few fine roots; common fine pores; strongly acid; clear smooth boundary.

B23tg—26 to 50 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/6) and common medium prominent red (2.5YR 4/8) mottles; dark brown (7.5YR 4/4) coatings on faces of some peds; moderate medium subangular blocky structure; friable; thin patchy distinct clay films on faces of peds; few fine and very fine pores; strongly acid; gradual wavy boundary.

B24tg—50 to 62 inches; gray (10YR 6/1) sandy clay loam; many medium distinct brownish yellow (10YR 6/6) mottles, common medium prominent red (2.5YR 4/8) mottles, and few medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; firm; thin patchy distinct clay films on faces of peds; few fine and very fine pores; very strongly acid; gradual wavy boundary.

B25tg—62 to 80 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/6), pale brown (10YR 6/3), and gray (N 5/0) mottles, and few medium prominent yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; firm; thin patchy distinct clay films on faces of peds; strongly acid.

Solum thickness ranges from 60 to more than 80 inches. The A horizon is medium acid or strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon is 4 to 14 inches thick. The Ap or A1 horizon is very dark gray, dark grayish brown, dark gray, or black and is 4 to 7 inches thick. The A2 horizon is gray or grayish brown sandy loam or loamy sand and is 0 to 8 inches thick.

The B1 horizon, where present, is as much as 10 inches of sandy loam or fine sandy loam. It is grayish brown and has yellowish brown or brownish yellow mottles.

The B2t horizon is 36 to more than 60 inches thick. It is gray, light gray, dark gray, or grayish brown and has few to many mottles of brownish yellow, yellowish brown, brown, reddish yellow, yellowish red, strong brown, and pale brown. Texture of the B2t horizon is sandy clay loam or clay loam. The B2t horizon is sandy clay below a depth of 40 inches in some pedons.

Rimini series

The Rimini series consists of deep, excessively drained, moderately permeable soils that formed in thick beds of sandy material of fluvial or marine origin. These nearly level and gently sloping soils are on rims around "Carolina bays" and on narrow, smooth divides along the flood plains of the Little Pee Dee and Lumber Rivers. Slope is dominantly less than 3 percent but ranges to as much as 6 percent along the edges of bays.

Rimini soils are geographically closely associated with Lakeland, Chipley, Leon, Lynn Haven, Paxville, and Rutlege soils. Lakeland and Chipley soils, which are on higher lying landscapes, do not have a spodic horizon. Lynn Haven, Paxville, and Rutlege soils, which are on lower lying landscapes, have an umbric epipedon. Leon soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Rimini sand, 0 to 6 percent slopes, about 2.3 miles northwest of Fork, 1.3 miles northeast of intersection of South Carolina Highway 57 and South Carolina Secondary Highway 22, about 800 feet northwest of South Carolina Secondary Highway 22, and 500 feet northeast of Little Pee Dee River:

A1—0 to 5 inches; dark gray (10YR 4/1) sand; many uncoated white grains of sand give a salt-and-pepper appearance; single grained; loose; common fine and medium roots; very strongly acid; gradual wavy boundary.

A21—5 to 30 inches; white (10YR 8/1) sand; single grained; loose; uncoated grains of sand; few medium roots; very strongly acid; gradual smooth boundary.

A22—30 to 60 inches; white (N 8/0) sand; single grained; loose; uncoated grains of sand; few medium roots; very strongly acid; abrupt wavy boundary.

B2h—60 to 72 inches; dark brown (7.5YR 3/2) sand; common medium faint dark reddish brown (5YR 3/2) mottles; weak medium subangular blocky structure; very friable; slightly brittle and weakly cemented; most grains of sand coated with organic matter; very strongly acid; gradual wavy boundary.

B3—72 to 80 inches; brown (10YR 4/3) sand; few medium distinct black (10YR 2/1) spheroidal bodies; weak medium subangular blocky structure; very friable; very strongly acid.

These soils are strongly acid to extremely acid throughout. Depth to the Bh horizon ranges from 50 to 65 inches.

The A1 horizon is 5 or 6 inches thick. It is very dark gray, dark gray, very dark grayish brown, or black and is a mixture of clean and organic coated sand.

The A2 horizon ranges from 45 to 60 inches in thickness; it is light gray to white.

The Bh horizon ranges from 12 to more than 20 inches in thickness; it is dark brown, very dark brown, or dark reddish brown and has mottles in varying shades of brown.

Some pedons have a B3 horizon that is brown, yellowish brown, or dark brown and that has black or dark reddish brown, spheroidal bodies.

Depth to the C horizon ranges from 60 to more than 80 inches. The C horizon is light grayish brown, grayish brown, dark grayish brown, pale brown, brown, or gray sand.

Rutlege series

The Rutlege series consists of deep, very poorly drained, rapidly permeable soils that formed in sandy, stratified fluvial or marine sediments. These soils are on upland flats bordering small streams and drainageways, in shallow depressions and oval bays, and on the flood plains of the Little Pee Dee and Lumber Rivers. They are saturated with water from December to May in most years. Slope is dominantly less than 1 percent but ranges to as much as 2 percent bordering better drained areas.

Rutlege soils are geographically closely associated with Osier, Lynn Haven, Paxville, Pantego, Rains, Johnston, Chipley, and Lakeland soils. Osier and Rains soils, which are on slightly higher landscapes, have an ochric epipedon. Lynn Haven, Paxville, and Pantego soils are on similar landscapes. Lynn Haven soils have a spodic horizon, and Paxville and Pantego soils have an argillic horizon. Chipley and Lakeland soils, which are on higher lying, convex ridges, are better drained. Johnston soils, which are on similar landscapes, have a thicker black A horizon.

Typical pedon of Rutlege loamy sand, about 7 miles southeast of Dillon, from intersection of South Carolina Secondary Highways 155 and 22, south about 0.5 mile on Highway 22, west about 1.5 miles on dirt road, and about 1,200 feet northeast of dirt road in a small, oval depression:

A1—0 to 10 inches; black (10YR 2/1) loamy sand; weak medium granular structure; loose; many fine and medium roots; very strongly acid; gradual smooth boundary.

C1g—10 to 18 inches; dark gray (10YR 4/1) sand; single grained; loose; few fine and medium roots; very strongly acid; gradual wavy boundary.

C2g—18 to 38 inches; gray (10YR 5/1) sand; single grained; loose; few fine roots; very strongly acid; gradual wavy boundary.

C3g—38 to 50 inches; gray (10YR 6/1) sand; single grained; loose; very strongly acid; gradual wavy boundary.

C4g—50 to 80 inches; light brownish gray (10YR 6/2) sand; single grained; loose; very strongly acid.

The soil is very strongly acid or extremely acid throughout.

The A horizon is 10 to 12 inches thick. It is black or very dark gray.

The C horizon is dark gray, light gray, gray, light brownish gray, or grayish brown and is mottled in places with these colors or in shades of yellow and brown.

Smithboro series

The Smithboro series consists of deep, somewhat poorly drained, slowly permeable soils that formed in clayey Coastal Plain sediments. These nearly level soils are in broad, flat areas of the terrace of the Great Pee Dee River and on uplands of the Coastal Plain. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Smithboro soils are geographically closely associated with Persanti, Duplin, Dunbar, Coxville, and Cantey soils. Persanti and Duplin soils, which are on higher lying convex ridges, are better drained. Dunbar soils, which are on similar landscapes, are lower in silt content and are not highly plastic and sticky. Coxville and Cantey soils, which are at lower elevations, are more poorly drained.

Typical pedon of Smithboro loam, about 2 miles southwest of Dillon, 0.25 mile west of intersection of South Carolina Secondary Highway 25 and SCL Railroad,

and about 150 feet southeast of South Carolina Secondary Highway 481:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; friable; many fine roots; medium acid; abrupt smooth boundary.

B21t—7 to 13 inches; pale brown (10YR 6/3) clay loam; few medium distinct yellowish brown (10YR 5/6) and few medium faint light brownish gray (10YR 6/2) mottles; some Ap material (10YR 4/2) in old root channels; weak medium subangular blocky structure; firm; thin patchy distinct clay films on faces of peds; common fine roots; few fine pores; very strongly acid; clear wavy boundary.

B22tg—13 to 22 inches; gray (10YR 5/1) clay loam; common medium distinct yellowish brown (10YR 5/8) and common medium prominent red (2.5YR 4/8) mottles; small amount of Ap material (10YR 4/2) in old root channels; moderate medium subangular blocky structure; very firm; thin continuous prominent clay films on faces of peds; few fine roots; few fine pores; very strongly acid; gradual wavy boundary.

B23tg—22 to 40 inches; gray (10YR 5/1) clay; many medium distinct yellowish brown (10YR 5/8) and common medium prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; very firm; thin continuous prominent clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—40 to 65 inches; mottled gray (10YR 6/1), strong brown (7.5YR 5/6), and red (10R 4/8) clay loam; moderate medium subangular blocky structure; very firm; very sticky and plastic; thin continuous distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3g—65 to 75 inches; gray (10YR 6/1) clay; many coarse distinct brownish yellow (10YR 6/8) and common medium prominent red (10R 4/8) mottles; weak medium subangular blocky structure; very firm; very sticky and plastic; thin patchy distinct clay films on faces of peds; very strongly acid.

Solum thickness is more than 60 inches. The A horizon ranges from medium acid to very strongly acid, and the B horizon ranges from strongly acid to extremely acid.

The A horizon is dark grayish brown or dark gray and is 5 to 7 inches thick.

The B1 horizon, where present, is 2 to 4 inches of pale brown or brownish yellow clay loam. Some pedons contain few to common mottles in shades of brown or gray.

The B2tg horizon is 39 to more than 60 inches thick; it is clay or clay loam. The upper part of the B2tg horizon is yellowish brown, light yellowish brown, brownish yellow, or pale brown and contains mottles in shades of brown, yellow, red, and gray. The lower part is gray, light gray, or grayish brown and contains common to many mottles in various shades of yellow, brown, and red.

The B3g horizon is gray and has common to many mottles of higher chroma, or it is mottled with shades of yellow, brown, red, and gray. It is clay, clay loam, or silty clay loam.

Summerton series

The Summerton series consists of deep, well drained, moderately slowly permeable soils that formed in clayey Coastal Plain sediments. These nearly level to sloping soils are on broad to narrow, smooth ridges, and in long, narrow areas parallel to streams and drainageways of stream terraces and uplands of the Coastal Plain. Slope is dominantly less than 4 percent but ranges to as much as 10 percent along drainageways.

Summerton soils are geographically closely associated with Varina, Dothan, Persanti, Duplin, Dunbar, Smithboro, Cantey, and Coxville soils. Varina and Dothan soils, which are on similar landscapes at about the same elevation, have plinthite content of more than 5 percent within 60 inches of the surface. In addition, Dothan soils have a coarser textured subsoil. Persanti, Duplin, Dunbar, Smithboro, Cantey, and Coxville soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Summerton loamy fine sand, 2 to 6 percent slopes, about 2.8 miles southeast of Lake View on South Carolina Highway 9, about 2,800 feet east of South Carolina Highway 9 on field road, and 400 feet south of field road:

Ap—0 to 7 inches; grayish brown (10YR 5/2) loamy fine sand; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.

B21t—7 to 15 inches; dark yellowish brown (10YR 4/6) clay loam; few medium distinct strong brown (7.5YR 5/8) mottles; moderate fine subangular blocky structure; friable; thin discontinuous distinct clay films on faces of peds; few fine roots; strongly acid; gradual smooth boundary.

B22t—15 to 54 inches; red (2.5YR 4/8) clay; common medium distinct strong brown (7.5YR 5/8) and dark red (2.5YR 3/6) mottles; strong medium subangular blocky structure; firm; thick continuous prominent clay films on faces of peds; few fine roots and pores; strongly acid; gradual wavy boundary.

B23t—54 to 66 inches; red (2.5YR 4/8) clay; common medium distinct strong brown (7.5YR 5/8) and dark red (2.5YR 3/6) and few medium distinct light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; firm; thick continuous prominent clay films on faces of peds; few fine pores; very strongly acid; gradual wavy boundary.

B24t—66 to 72 inches; red (2.5YR 4/8) clay; common medium distinct strong brown (7.5YR 5/6), dark red (2.5YR 3/6), and light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; firm; thick patchy faint clay films on faces of peds; very strongly acid.

Solum thickness is more than 60 inches. Reaction ranges from strongly acid to slightly acid in the A horizon and from strongly acid to extremely acid in the B2t and B3 horizons.

The A horizon ranges from 5 to 14 inches in thickness. The Ap or A1 horizon is brown, yellowish brown, grayish brown, or very dark grayish brown and is 5 to 9 inches thick. The A2 horizon, where present, is as much as 6 inches of brownish yellow or light yellowish brown sandy loam or loamy fine sand.

The B1 horizon, where present, is 1 to 4 inches of strong brown or yellowish brown sandy clay loam or clay loam.

The B2t horizon is 47 to more than 60 inches thick. It is firm or very firm clay, clay loam, or sandy clay. The upper part of the B2t horizon is strong brown, red, yellowish red, or yellowish brown and has few to common mottles in varying shades of red, yellow, and brown. The lower part is yellowish red or red or is mottled with varying shades of red, yellow, brown, or gray.

The B3 horizon is strong brown or red and has few to many mottles in shades of red, yellow, brown, or gray, and it is mottled with these colors. Texture is clay loam, sandy clay, or clay.

Tawcaw series

The Tawcaw series consists of deep, somewhat poorly drained, slowly permeable soils that formed in clayey alluvial sediments. These nearly level soils are on the flood plain of the Great Pee Dee River, which originates in the Piedmont Plateau or Appalachian Mountains. They are saturated with water late in winter and early in spring. Slope is dominantly less than 1 percent.

Tawcaw soils are geographically closely associated with Chastain, Byars, and Cantey soils. Chastain, Byars, and Cantey soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Tawcaw silty clay loam in an area of Tawcaw association, frequently flooded, about 2 miles west of Dillon on South Carolina Highway 34, 15 miles south on Interstate Highway 95, and 300 feet east of road:

A1—0 to 4 inches; brown (10YR 5/3) silty clay loam; weak medium granular structure; friable; common fine and medium roots; few fine holes; few fine flakes of mica; strongly acid; clear smooth boundary.

B21—4 to 12 inches; dark brown (7.5YR 4/4) silty clay loam; many fine distinct brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; few fine holes and pores; few fine flakes of mica; strongly acid; clear smooth boundary.

B22—12 to 22 inches; brown (10YR 5/3) silty clay; common fine prominent dark brown (7.5YR 4/4) and few medium distinct light gray (10YR 6/1) mottles; weak medium subangular blocky structure; firm; common fine roots; few fine holes and pores; few fine flakes of mica; strongly acid; clear smooth boundary.

B23—22 to 30 inches; brown (10YR 5/3) silty clay; many medium distinct light gray (10YR 6/1) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few fine roots, holes, and pores; few fine flakes of mica; strongly acid; clear smooth boundary.

B24—30 to 50 inches; mottled light gray (10YR 6/1) and yellowish brown (10YR 5/8) silty clay; few medium distinct yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; firm; few fine roots, holes, and pores; few fine flakes of mica; medium acid; clear smooth boundary.

B3—50 to 60 inches; light gray (10YR 6/1) and strong brown (7.5YR 5/8) silty clay loam; common medium distinct yellowish red (5YR 4/8) mottles; massive; firm; few fine holes and pores; few fine flakes of mica; medium acid; clear smooth boundary.

Solum thickness is more than 50 inches. Reaction is medium acid to very strongly acid throughout. Few to common flakes of mica are throughout, and few to common manganese bodies are in the B horizon in some pedons.

The A horizon ranges from 4 to 10 inches in thickness. It is brown, dark brown, or dark yellowish brown silty clay loam or silt loam. Common light yellowish brown mottles are in the A horizon in some pedons.

The B21 horizon is dark brown or brown. Few to many mottles in shades of brown occur in some pedons. Mottles with chroma of 2 or less are within 24 inches of the surface.

The B22 and B23 horizons are dark brown, brown, dark yellowish brown, or yellowish brown and have few to many mottles in shades of brown, gray, or red, or they are mottled with these colors. The B2 horizon is silty clay loam or silty clay.

The B24 horizon, where present, is mottled light gray and yellowish brown silty clay.

The B3 horizon, where present, is mottled in shades of brown and gray. It is silty clay loam or sandy clay loam.

Varina series

The Varina series consists of deep, well drained, slowly permeable soils that formed in unconsolidated, clayey Coastal Plain sediments. These nearly level to gently sloping soils are on broad, smooth ridges and narrow slopes of uplands of the Coastal Plain. Slope is dominantly less than 2 percent but ranges to as much as 6 percent along drainageways.

Varina soils are geographically closely associated with Dothan, Faceville, Summerton, Persanti, Duplin, and Dunbar soils. Faceville, Summerton, and Persanti soils, which are on similar landscapes, are less than 5 percent plinthite within 60 inches of the surface. Dothan soils, which are on similar landscapes, have a fine-loamy control section. Duplin and Dunbar soils, which are on lower lying landscapes, are more poorly drained.

Typical pedon of Varina sandy loam, 0 to 2 percent slopes, about 2.5 miles north of Floydale on South Carolina Highway 57, about 0.6 mile west on South Carolina Secondary Highway 294, about 0.3 mile south of South Carolina Secondary Highway 294, and about 20 feet west of field road:

Ap—0 to 6 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; very friable; common fine, medium, and large roots; medium acid; clear smooth boundary.

B21t—6 to 16 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; thin patchy distinct clay films on faces of peds; common fine roots; few fine holes and pores; strongly acid; clear smooth boundary.

B22t—16 to 28 inches; yellowish brown (10YR 5/6) clay; common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; thin patchy distinct clay films on faces of peds; few fine roots, holes, and pores; very strongly acid; clear smooth boundary.

B23t—28 to 42 inches; yellowish brown (10YR 5/6) clay; many medium distinct yellowish red (5YR 5/6) and few fine distinct pale brown mottles; strong fine and medium subangular blocky structure; firm; thick continuous prominent clay films on faces of peds and in old root channels; few fine roots, holes, and pores; about 5 percent nodules of plinthite; very strongly acid; clear smooth boundary.

B24t—42 to 54 inches; yellowish brown (10YR 5/6) clay; many medium prominent red (2.5YR 4/6) mottles and common medium distinct pale brown (10YR 6/3) and light gray (10YR 7/1) mottles; moderate medium subangular blocky structure; firm; thick continuous prominent clay films on faces of peds; few fine holes and pores; about 8 percent nodules of plinthite; strongly acid; gradual wavy boundary.

B25t—54 to 60 inches; mottled strong brown (7.5YR 5/6) and red (2.5YR 4/6) clay; common medium distinct light gray (10YR 7/1) and pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; firm; thick discontinuous distinct clay films on faces of peds; few fine holes and pores; about 10 percent nodules of plinthite; strongly acid; gradual wavy boundary.

B26t—60 to 75 inches; coarsely mottled gray, brown, and red clay; moderate medium subangular blocky structure; firm; thin patchy faint clay films on faces of peds; about 5 percent nodules of plinthite; strongly acid.

Solum thickness is more than 60 inches. The A horizon is medium acid or strongly acid, and the B horizon is strongly acid or very strongly acid.

The A horizon ranges from 6 to 14 inches in thickness. The Ap horizon is brown or grayish brown and is 5 to 9 inches thick. The A2 horizon, where present, is less than 8 inches of pale brown sandy loam or loamy sand.

The B2t horizon is more than 50 inches thick. The upper part of the B2t horizon is yellowish brown, brownish yellow, or strong brown and has few to many mottles in shades of brown, yellow, and red. The lower part is yellowish brown and mottled strong brown and red, and has few to many mottles in shades of red, brown, and gray. The lower part of the B2t horizon in some pedons is coarsely mottled in shades of red, brown, and gray. The B2t horizon is clay loam, sandy clay, or clay. Content of nodules of plinthite within 60 inches of the surface is 5 to 15 percent.

The B3 horizon, where present, is mottled in shades of brown, red, and gray. Texture is sandy clay loam.

Classification of the soils

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Readers interested in further details about the system should refer to "Soil taxonomy" (*7*).

The system of classification has six categories. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. In this system the classification is based on the different soil properties that can be observed in the field or those that can be inferred either from other properties that are observable in the field or from the combined data of soil science and other disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. In table 19, the soils of the survey area are classified according to the system. Categories of the system are discussed in the following paragraphs.

ORDER. Ten soil orders are recognized as classes in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in *sol.* An example is Entisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to plant growth or that are selected to reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about the properties of the soil. An example is Fluvaquents (*Fluv*, meaning river flood plain, plus *aquent*, the suborder of Entisols that have an aquic moisture regime).

SUBGROUP. Each great group may be divided into three subgroups: the central (typic) concept of the great groups, which is not necessarily the most extensive subgroup; the intergrades, or transitional forms to other orders, suborders, or great groups; and the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that is thought to typify the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Among the properties considered in horizons of major biological activity below plow depth are particle-size distribution, mineral content, temperature regime, thickness of the soil penetrable by roots, consistence, moisture equivalent, soil slope, and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentiae. An example is fine, kaolinitic, acid, thermic Typic Haplaquents.

SERIES. The series consists of soils that formed in a particular kind of material and have horizons that, except for texture of the surface soil or of the underlying substratum, are similar in differentiating characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineral and chemical composition.

Formation of the soils

In the paragraphs that follow, the factors of soil formation are described and related to the soils of the survey area. The processes of soil horizon differentiation are also described.

Factors of soil formation

Soil is the natural medium in which plants grow and the product of soil-forming processes acting on accumulated or deposited geologic materials. The five important factors in soil formation are parent material, climate, living organisms (plants and animals), relief, and time.

Climate and living organisms are the active forces of soil formation. Their effect on the parent material is modified by relief and by the length of time the parent material has been in place. The relative importance of each factor differs from place to place. In some places one factor dominates in formation and fixes most of the properties of the soil formed, but normally the interaction of all five factors determines what kind of soil is formed at any given place.

Although soil formation is complex, some understanding of the soil-forming processes may be gained by considering each of the five factors separately. It must be remembered, however, that each of the five factors is affected by and also affects each of the other factors.

Parent material

Parent material is the unconsolidated mass from which a soil is formed. It influences the mineral and chemical composition of the soils. In Dillon County the parent materials of the soils are marine or fluvial deposits that contain varying amounts of sand, silt, and clay.

Three terrace formations in this county were deposited and formed during the Pleistocene, or glacial epoch (*3*). These are the Sunderland, the Wicomico, and the Penholoway Formations.

The Sunderland Terrace is about 100 to 170 feet above sea level and makes up most of Dillon County. The highest elevations in the county are in this area. Dothan,

Fuquay, Blanton, Clarendon, Persanti, Smithboro, Coxville, Pantego, and Rutlege soils are the dominant soils that formed in this material.

The Wicomico Terrace is about 70 to 100 feet above sea level. It makes up areas along the Little Pee Dee River swamp, Buck Swamp, Catfish Canal, Beaver Dam Creek, and Bear swamp. Johnston, Rutlege, Lumbee, Leon, Lakeland, Rimini, Ponzer, Chastain, Byars, Cantey, and Johns soils are the dominant soils that formed in this material.

The Penholoway Terrace is about 42 to 70 feet above sea level. It makes up areas of stream terrace soils along the Lumber, Great Pee Dee, and Little Pee Dee Rivers. Smithboro, Tawcaw, Cantey, Byars, Chastain, Johnston, Rutlege, and Leon soils are the dominant soils in most of this area.

Climate

Dillon County has a temperate climate. Rainfall is well distributed throughout the year. Because the climate is fairly uniform throughout the entire county, climate does not account for significant differences among the soils. Temperature and precipitation data are given in the section "General nature of the county" under the heading "Climate."

Climate, particularly precipitation and temperature, affects the physical, chemical, and biological relationship in the soil. Water dissolves minerals, aids chemical and biological activity, and transports the dissolved mineral and organic material through the soil profile. Large amounts of rainwater promote leaching of the soluble bases and the translocation of the less soluble, fine textured soil material downward through the soil profile. The amount of water that percolates through the soil depends on the amount of rainfall, the length of the frost-free season, relief, and the permeability of the soil material.

Weathering of the parent material is speeded by moist conditions and the warm temperatures. The growth and activity of living organisms is increased by the warm, humid climate.

Thus, the high rainfall, warm temperatures, and long freeze-free growing season of Dillon County have had a marked effect both on the soils directly and on some of the other factors that affect the soils.

Living organisms

The number and kinds of plants and animals that live in and on the soil are determined mainly by the climate but also to a lesser extent by parent material, relief, and age of the soil.

Bacteria, fungi, and other micro-organisms are indispensable in soil formation. They hasten the weathering of minerals and the decomposition of organic matter. Larger plants alter the soil microclimate, furnish organic matter, and transfer chemical elements from the subsoil to the surface layer.

Most of the fungi, bacteria, and other micro-organisms in the soils of Dillon County are in the upper few inches of the soil. The activity of earthworms and other small invertebrates is chiefly in the A horizon and in the upper part of the B horizon, where these organisms slowly but continuously mix the soil material. Bacteria and fungi decompose organic matter and release nutrients for plant use.

Animals play a secondary role in soil formation, but their influence is very great. By eating plants they perform one step in returning plant material to the soil.

In Dillon County the native vegetation in areas of better drained soils was chiefly loblolly pine, longleaf pine, oak, and hickory. In wetter areas it was mainly sweetgum, blackgum, yellow-poplar, maple, ash, tupelo, and cypress. Large trees affect soil formation by bringing nutrients up from deep in the soil, by bringing soil material up from varying depths when blown over, and by providing large openings to be filled by material from above as large roots decay.

Relief

Relief, or lay of the land, influences soil formation because of its effect on moisture, temperature, and erosion. Because of this, several different kinds of soil may form from similar parent material. Although most of Dillon County is nearly level to gently sloping, three general landscapes in the county affect the formation of soils. The first landscape consists of nearly level to sloping, mostly well drained, deep soils that are moderately dissected by streams. The second consists of broad areas of slightly dissected, nearly level, deep, moderately well drained to poorly drained soils between streams. Most of the soils are yellow to gray, and many are distinctly mottled. The third consists of areas of young, predominantly gray soils that are on stream bottoms and low terraces and that have poorly defined genetic layers.

Time

The length of time required for a soil to develop depends largely on the intensity of other soil-forming factors. The soils of Dillon County range from immature, or young, to mature. On the higher elevations of the uplands, most of the soils have well developed horizons that are easily recognized. Where the parent materials are very sandy, however, little horizonation has taken place, and where relief is very low and the soils are permanently saturated, horizons are only moderately distinct. On the first bottoms of streams, the soil material has not been in place long enough for soil horizons to form.

Processes of soil horizon differentiation

If a vertical cut is dug into a soil, several layers, or horizons are evident. The differentiation of horizons is the result of many soil-forming processes. These include accumulation of organic matter; leaching of soluble salts;

reduction and translocation of iron; formation of soil structure physical weathering, such as freezing and thawing; and chemical weathering of primary minerals or rocks.

Some of these processes are continually taking place in all soils, but the number of active processes and the degree of their activity vary from one soil to another.

Most soils contain three major horizons, called A, B, and C (*6*). These major horizons may be further subdivided by the use of subscripts and letters to indicate changes within one horizon. For example, a B2t horizon represents a layer within the B horizon that contains translocated clay illuviated from the A horizon.

The A horizon is the surface layer. The layer with the largest accumulation of organic matter is called an A1 horizon. If the soils are cleared and plowed, the plow layer becomes an Ap horizon. The Lynchburg and Coxville soils are examples of soils that a distinctive, dark colored A1 or Ap horizon. The A horizon is also the larger of maximum leaching or eluviation of clay and iron. When considerable leaching has taken place, an A2 horizon is formed just below the surface layer. Normally, it is the lightest colored horizon in the soil. It is well expressed in such soils as Dothan and Fuquay soils.

The B horizon lies below the A horizon and is commonly called the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, or other compounds leached from the A horizon. Dothan, Varina, and Summerton soils are among the soils that have a well expressed B horizon.

The C horizon is below the A or B horizon. Some soils, such as Lakeland and Rutlege soils, do not have a B horizon, and the C horizon lies immediately under the A horizon. The C horizon consists of materials that are little altered by the soil forming processes but that may be modified by weathering.

Well drained and moderately well drained soils in Dillon County have a yellowish brown or reddish subsoil. These colors are mainly caused by thin coatings of iron oxides on the sand, silt, and clay particles. A soil is considered well drained if it is free of gray (chroma of 2 or less) mottles to a depth of at least 30 inches. Among the well drained soils in this county are Dothan, Summerton, and Fuquay soils. Moderately well drained soils are wet for short periods and are generally free of gray mottles to a depth of about 15 to 20 inches. Clarendon and Persanti soils are examples of moderately well drained soils.

The reduction and transfer of iron is associated with the wetter, more poorly drained soils. This process is called gleying. Poorly drained to very poorly drained soils, such as Coxville and Pantego soils, have a subsoil and underlying material that are grayish, indicating reduction and transfer of iron. Moderately well drained to somewhat poorly drained soils have yellowish brown and gray mottles, which indicate segregation of iron. Lynchburg and Smithboro soils are among the somewhat poorly drained soils in this county.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	More than 9

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coat, clay skin.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is 40 or 80 inches (1 or 2 meters).

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically for long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients, as for example in "hillpeats" and "climatic moors."

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes a bare surface.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fine textured (heavy textured) soil. Sandy clay, silty clay, and clay.

Flooding. The temporary covering of soil with water from overflowing streams, runoff from adjacent slopes, and tides. Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; *November-May*, for example, means that flooding can occur during the period November through May. Water standing for short periods after rainfall or commonly covering swamps and marshes is not considered flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. The major horizons of mineral soil are as follows:

O horizon.—An organic layer, fresh and decaying plant residue, at the surface of a mineral soil.

A horizon.—The mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon most of which was originally part of a B horizon.

A2 horizon.—A mineral horizon, mainly a residual concentration of sand and silt high in content of resistant minerals as a result of the loss of silicate clay, iron, aluminum, or a combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or a combination of these; (2) by prismatic or blocky structure; (3) by redder or browner colors than those in the A horizon; or (4) by a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that from which the solum is presumed to have formed. If the material is known to differ from that in the solum the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. Inadequate strength for supporting loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is greater than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous areas. Areas that have little or no natural soil, are too nearly inaccessible for orderly examination, or cannot otherwise be feasibly classified.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark colored, finely divided, well decomposed organic soil material mixed with mineral soil material. The content of organic matter is more than 20 percent.

Munsell notation. A designation of color by degrees of the three single variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Plant nutrients are nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements obtained from the soil; and carbon, hydrogen, and oxygen obtained largely from the air and water.

Parent material. The great variety of unconsolidated organic and mineral material in which soil forms. Consolidated bedrock is not yet parent material by this concept.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly. The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality that enables the soil to transmit water or air, measured as the number of inches per hour that water moves through the soil. Terms describing permeability are *very slow* (less than 0.06 inch), *slow* (0.06 to 0.20 inch), *moderately slow* (0.2 to 0.6 inch), *moderate* (0.6 to 2.0 inches), *moderately rapid* (2.0 to 6.0 inches), *rapid* (6.0 to 20 inches), and *very rapid* (more than 20 inches).

Phase, soil. A subdivision of a soil series or other unit in the soil classification system based on differences in the soil that affect its management. A soil series, for example, may be divided into phases on the bases of differences in slope, stoniness, thickness, or some other characterisitc that affects management. These differencees are too small to justify separate series.

pH value. (See Reaction, soil). A numerical designation of acidity and alkalinity in soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from a semisolid to a plastic state.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents that commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on exposure to repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade, whereas ironstone cannot be cut but can be broken or shattered with a spade. Plinthite is one form of the material that has been called laterite.

Productivity (soil). The capability of a soil for producing a specified plant or sequence of plants under a specified system of management. Productivity is measured in terms of output, or harvest, in relation to input.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged in stream channels from a drainage area. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage. The rapid movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon.

Series, soil. A group of soils, formed from a particular type of parent material, having horizons that, except for the texture of the A or surface horizon, are similar in all profile characteristics and in arrangement in the soil profile. Among these characteristics are color, texture, structure, reaction, consistence, and mineralogical and chemical composition.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Soil. A natural, three-dimensional body at the earth's surface that is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows: *very coarse sand* (2.0 millimeters to 1.0 millimeter); *coarse sand* (1.0 to 0.5 millimeter); *medium sand* (0.5 to 0.25 millimeter); *fine sand* (0.25 to 0.10 millimeter); *very fine sand* (0.10 to 0.05 millimeter); *silt* (0.005 to 0.002 millimeter); and *clay* (less than 0.002 millimeter).

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in mature soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristics of the soil are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates that are separated from adjoining aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use or management.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet without harm. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt, silt loam, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or " very fine."

Thin layer. Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The condition of the soil, especially the soil structure, as related to the growth of plants. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil (engineering). Presumably a fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Water table. The upper limit of the soil or underlying rock material that is wholly saturated with water.

Water table, apparent. A thick zone of free water in the soil. An apparent water table is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

Water table, artesian. A water table under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Water table, perched. A water table standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Illustrations

Figure 1.—This soil scientist is using a soil auger to gather a soil sample for examination. He determined that the soil is Orangeburg loamy sand, 0 to 2 percent slopes, which is well suited to corn.

Figure 2.—Dunbar fine sandy loam is not well suited to home construction.

Figure 3.—Crop residue management and minimum tillage improve the physical condition of the soil and save time and labor. This corn was planted in fescue sod on Duplin fine sandy loam, 0 to 2 percent slopes.

Figure 4.—Kenansville sand, 0 to 4 percent slopes, is fairly well suited to soybeans.

Figure 5.—This golf fairway was built on Lakeland sand, 0 to 6 percent slopes.

Figure 6.—Native vegetation on Rimini sand, 0 to 6 percent slopes, is blackjack oak, turkey oak, and longleaf pine. This area is on the terrace of the Little Pee Dee River.

Figure 7.—Flooded woodland along the Great Pee Dee River, in the Tawcaw association, frequently flooded.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION DATA

[Recorded in the period 1954-74 at Dillon, S.C.]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	54.6	30.5	42.6	78	11	52	3.78	2.25	5.14	7	.3
February---	57.3	32.2	44.8	78	14	48	3.77	2.11	5.12	7	1.0
March------	65.2	38.9	52.0	86	21	157	3.99	2.50	5.32	7	.4
April------	75.1	47.8	61.5	91	28	345	3.15	1.57	4.43	5	0
May--------	82.1	55.9	69.0	96	37	589	3.52	1.90	4.84	7	0
June-------	87.5	63.2	75.4	100	47	762	4.76	2.65	6.48	7	0
July-------	90.3	67.7	79.0	99	55	899	5.39	3.27	7.28	9	0
August-----	89.5	67.0	78.3	98	54	877	5.24	2.80	7.22	7	0
September--	85.1	60.6	72.9	96	41	687	3.76	1.32	5.70	5	0
October----	75.9	48.3	62.1	91	25	379	3.53	.94	5.59	4	0
November---	66.7	37.7	52.2	83	18	110	2.48	1.02	3.66	4	0
December---	57.7	31.8	44.8	78	13	84	2.75	1.46	3.80	5	.4
Year-----	73.9	48.5	61.2	100	9	4,989	46.12	39.64	52.35	74	2.1

[1]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1954-74 at Dillon, S.C.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 26	April 11	April 23
2 years in 10 later than--	March 19	April 5	April 18
5 years in 10 later than--	March 6	March 24	April 7
First freezing temperature in fall:			
1 year in 10 earlier than--	October 29	October 21	October 16
2 years in 10 earlier than--	November 4	October 26	October 19
5 years in 10 earlier than--	November 15	November 5	October 26

TABLE 3.--GROWING SEASON LENGTH

[Recorded in the period 1954-74 at Dillon, S.C.]

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	226	203	182
8 years in 10	235	211	189
5 years in 10	253	225	202
2 years in 10	272	239	214
1 year in 10	281	247	221

TABLE 4.--POTENTIALS AND LIMITATIONS OF MAP UNITS ON THE GENERAL SOIL MAP FOR SPECIFIED USES

[Potentials vary widely; they are based on the extent of the unit and on the severity of the limitations]

Map unit	Extent of area	Cultivated crops	Pasture	Woodland	Urban uses	Recreation areas
	Pct					
1. Lakeland-Rutlege-Chipley.	11.4	Poor: too sandy, wetness.	Fair: too sandy, wetness.	Fair: too sandy, wetness.	Good: too sandy, wetness.	Good: too sandy, wetness.
2. Faceville-Coxville-Varina.	12.3	Good: erosion, wetness.	Good: erosion, wetness.	Fair: too clayey, wetness.	Good: percs slowly, wetness.	Good: too clayey, slope, wetness.
3. Dothan-Coxville-Fuquay.	30.5	Good: wetness.	Good: wetness.	Good: wetness.	Good: percs slowly, wetness.	Good: slope, wetness.
4. Persanti-Coxville-Varina.	17.1	Good: erosion, wetness.	Good: erosion, wetness.	Good: wetness.	Poor: low strength, percs slowly, wetness.	Poor: percs slowly, wetness.
5. Cantey-Smithboro-Persanti.	9.0	Fair: floods, wetness.	Good: floods, wetness.	Good: floods, wetness.	Poor: percs slowly, floods, wetness.	Poor: percs slowly, floods, wetness.
6. Coxville-Smithboro	4.2	Good: wetness.	Good: wetness.	Good: wetness.	Poor: percs slowly, wetness.	Poor: percs slowly, wetness.
7. Johnston-Rutlege-Chipley.	10.5	Poor: floods, wetness.	Fair: floods, wetness.	Good: floods, wetness.	Poor: floods, wetness.	Poor: floods, wetness.
8. Ponzer----------	2.0	Good: floods, wetness.	Good: floods, wetness.	Fair: floods, wetness.	Poor: floods, wetness.	Poor: floods, wetness.
9. Chastain----------	2.5	Poor: floods, wetness.	Fair: floods, wetness.	Good: floods, wetness.	Poor: floods, wetness.	Poor: floods, wetness.
10. Tawcaw----------	0.5	Good: floods, wetness.	Good: floods, wetness.	Good: floods, wetness.	Poor: percs slowly, floods, wetness.	Poor: too clayey, floods, wetness.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
BaB	Blanton sand, 0 to 6 percent slopes	2,560	1.0
BrA	Brogdon sand, 0 to 2 percent slopes	1,000	0.4
By	Byars loam	3,270	1.3
Ca	Cantey loam	11,740	4.5
Ch	Chastain loam, frequently flooded	4,000	1.5
CpA	Chipley sand, 0 to 2 percent slopes	3,510	1.4
Cr	Clarendon loamy sand	10,180	3.9
Cx	Coxville fine sandy loam	29,390	11.2
DaA	Dothan loamy fine sand, 0 to 2 percent slopes	21,430	8.1
DaB	Dothan loamy fine sand, 2 to 6 percent slopes	4,920	1.9
Dn	Dunbar fine sandy loam	9,660	3.7
DuA	Duplin fine sandy loam, 0 to 2 percent slopes	5,500	2.1
FaA	Faceville loamy fine sand, 0 to 2 percent slopes	2,380	0.9
FaB	Faceville loamy fine sand, 2 to 6 percent slopes	3,030	1.2
FuB	Fuquay sand, 0 to 6 percent slopes	13,100	5.0
FuC	Fuquay sand, 6 to 10 percent slopes	370	0.1
Jo	Johns loamy sand	1,090	0.4
JR	Johnston-Rutlege association, frequently flooded	18,540	7.1
KnB	Kenansville sand, 0 to 4 percent slopes	1,060	0.4
LaB	Lakeland sand, 0 to 6 percent slopes	14,290	5.5
LaC	Lakeland sand, 6 to 10 percent slopes	810	0.3
LbA	Leon sand, 0 to 2 percent slopes	2,780	1.1
LcB	Lucy sand, 2 to 6 percent slopes	660	0.3
Lm	Lumbee sandy loam	1,710	0.7
Ln	Lynchburg sandy loam	4,180	1.6
Ly	Lynn Haven sand	1,400	0.5
Mc	McColl loam	760	0.3
OrA	Orangeburg loamy sand, 0 to 2 percent slopes	1,390	0.5
OrB	Orangeburg loamy sand, 2 to 6 percent slopes	1,230	0.5
Os	Osier loamy sand	3,610	1.4
Pa	Pantego loam	7,720	3.0
Pb	Paxville loam	4,630	1.8
PeA	Persanti fine sandy loam, 0 to 2 percent slopes	15,880	6.1
PeB	Persanti fine sandy loam, 2 to 6 percent slopes	1,830	0.7
PoA	Pocalla sand, 0 to 2 percent slopes	2,670	1.0
PZ	Ponzer soils	2,040	0.8
Ra	Rains fine sandy loam	5,970	2.3
RnB	Rimini sand, 0 to 6 percent slopes	410	0.2
Ru	Rutlege loamy sand	8,200	3.2
Sm	Smithboro loam	15,010	5.8
SuA	Summerton loamy fine sand, 0 to 2 percent slopes	1,310	0.5
SuB	Summerton loamy fine sand, 2 to 6 percent slopes	2,480	1.0
SuC	Summerton loamy fine sand, 6 to 10 percent slopes	270	0.1
TA	Tawcaw association, frequently flooded	1,030	0.4
UD	Udorthents	270	0.1
VaA	Varina sandy loam, 0 to 2 percent slopes	7,940	3.1
VaB	Varina sandy loam, 2 to 6 percent slopes	2,790	1.1
	Total	260,000	100.0

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE

[All yields were estimated for a high level of management in 1976. Absence of a yield figure indicates the crop is seldom grown or the soil is not suited to the crop]

Soil name and map symbol	Tobacco	Corn	Cotton lint	Soybeans	Oats	Improved bermudagrass	Bahiagrass
	Lb	Bu	Lb	Bu	Bu	AUM*	AUM*
BaB---- Blanton	2,000	60	---	25	---	8.0	8.0
BrA---- Brogdon	2,400	90	700	35	---	10.0	9.0
By---- Byars	---	110	---	40	65	---	12.0
Ca---- Cantey	---	85	---	35	---	---	8.5
Ch---- Chastain	---	---	---	---	---	---	---
CpA---- Chipley	2,000	50	---	20	---	8.0	7.5
Cr---- Clarendon	3,000	110	700	40	---	10.5	10.0
Cx---- Coxville	---	105	---	40	70	---	---
DaA---- Dothan	---	90	800	---	---	---	8.0
DaB---- Dothan	---	80	750	---	---	---	8.0
Dn---- Dunbar	2,600	110	600	45	---	---	---
DuA---- Duplin	2,800	110	750	50	---	---	---
FaA, FaB---- Faceville	2,400	105	875	40	---	10.0	7.0
FuB---- Fuquay	2,400	80	650	30	60	---	---
FuC---- Fuquay	2,200	75	600	25	50	---	---
Jo---- Johns	2,700	120	650	45	---	---	---
JR**:							
Johnston----	---	---	---	---	---	---	---
Rutlege----	---	---	---	---	---	---	---
KnB---- Kenansville	2,000	70	550	30	---	---	---
LaB---- Lakeland	1,700	55	---	20	---	7.0	7.0
LaC---- Lakeland	---	---	---	---	---	6.5	6.5
LbA---- Leon	---	50	---	---	---	9.0	7.5

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Tobacco	Corn	Cotton lint	Soybeans	Oats	Improved bermudagrass	Bahiagrass
	Lb	Bu	Lb	Bu	Bu	AUM*	AUM*
LcB---- Lucy	---	80	650	25	---	---	8.5
Lm---- Lumbee	---	110	---	45	70	---	---
Ln---- Lynchburg	2,800	115	675	45	75	---	10.0
Ly---- Lynn Haven	---	70	---	---	---	---	7.5
Mc---- McColl	---	90	---	35	65	---	---
OrA---- Orangeburg	2,400	100	900	50	---	10.5	8.5
OrB---- Orangeburg	2,400	100	850	45	---	10.5	8.5
Os---- Osier	---	---	---	---	---	---	5.0
Pa---- Pantego	---	120	---	50	---	---	---
Pb---- Paxville	---	110	---	40	---	---	12.0
PeA---- Persanti	2,400	100	700	40	---	9.0	8.0
PeB---- Persanti	2,200	90	650	35	---	9.0	8.0
PoA---- Pocalla	2,000	75	600	30	---	9.0	8.0
PZ**---- Ponzer	---	120	---	40	75	---	---
Ra---- Rains	2,300	110	450	40	70	---	10.0
RnB---- Rimini	---	---	---	---	---	---	---
Ru---- Rutlege	---	---	---	---	---	---	---
Sm---- Smithboro	---	90	---	40	65	---	9.0
SuA---- Summerton	2,200	100	850	40	---	10.0	9.0
SuB---- Summerton	2,000	90	800	35	---	10.0	9.0
SuC---- Summerton	---	80	700	30	---	9.0	8.0
TA**---- Tawcaw	---	---	---	---	---	---	---
UD**---- Udorthents	---	---	---	---	---	---	---

See footnotes at end of table.

TABLE 6.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Tobacco	Corn	Cotton lint	Soybeans	Oats	Improved bermuda-grass	Bahiagrass
	Lb	Bu	Lb	Bu	Bu	AUM*	AUM*
VaA---------- Varina	2,400	100	850	40	---	---	---
VaB---------- Varina	2,400	100	850	40	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for a period of 30 days.
** See map unit description for the composition and behavior characteristics of the map unit.

TABLE 7.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	5,080	---	---	---	---
II	109,920	16,280	46,490	47,150	---
III	73,970	270	67,260	6,440	---
IV	25,775	---	11,485	14,290	---
V	3,610	---	3,610	---	---
VI	22,384	---	21,164	1,220	---
VII	12,446	---	12,446	---	---
VIII	---	---	---	---	---

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that the information was not available. Site index was calculated at age 30 for eastern cottonwood and at age 50 for all other species]

Soil name and map symbol	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
BaB--Blanton	3s	Slight	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	80 80 70	Slash pine, longleaf pine.
BrA--Brogdon	2o	Slight	Slight	Slight	Loblolly pine Slash pine	86 86	Loblolly pine, slash pine.
By--Byars	2w	Slight	Severe	Severe	Loblolly pine Sweetgum Water tupelo Slash pine Water oak	95 90 --- 92 90	Loblolly pine, slash pine, water tupelo, American sycamore.
Ca--Cantey	2w	Slight	Severe	Severe	Loblolly pine Slash pine Sweetgum Water oak	90 90 85 ---	Loblolly pine, slash pine, sweetgum.
Ch--Chastain	2w	Slight	Severe	Severe	Sweetgum Water oak Eastern cottonwood Green ash Loblolly pine Water tupelo White oak Southern red oak Baldcypress	94 89 90 88 90 --- --- --- ---	Loblolly pine, American sycamore, sweetgum, cherrybark oak.
CpA--Chipley	2s	Slight	Moderate	Slight	Slash pine Loblolly pine Longleaf pine	90 90 80	Slash pine, loblolly pine.
Cr--Clarendon	2w	Slight	Moderate	Slight	Loblolly pine Slash pine Sweetgum	90 90 85	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum.
Cx--Coxville	2w	Slight	Severe	Severe	Loblolly pine Slash pine Longleaf pine Sweetgum Water oak Willow oak Water tupelo	90 90 71 90 90 --- ---	Loblolly pine, slash pine, sweetgum, American sycamore.
DaA, DaB--Dothan	2o	Slight	Slight	Slight	Slash pine Loblolly pine Longleaf pine	90 90 70	Slash pine, loblolly pine, longleaf pine.
Dn--Dunbar	2w	Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine Water oak Yellow-poplar Sweetgum	90 85 70 --- --- 90	Loblolly pine, slash pine, sweetgum, yellow-poplar.
DuA--Duplin	2w	Slight	Moderate	Moderate	Loblolly pine Slash pine Sweetgum Blackgum Southern red oak Yellow-poplar	90 90 90 --- --- 100	Loblolly pine, slash pine, yellow-poplar, American sycamore, sweetgum.

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
FaA, FaB---------- Faceville	3o	Slight	Slight	Slight	Loblolly pine-------	82	Loblolly pine, slash pine.
					Slash pine----------	80	
					Longleaf pine-------	65	
FuB, FuC---------- Fuquay	3s	Slight	Moderate	Moderate	Loblolly pine-------	83	Slash pine, loblolly pine.
					Slash pine----------	83	
					Longleaf pine-------	67	
Jo---------- Johns	2w	Slight	Moderate	Slight	Loblolly pine-------	86	Loblolly pine, slash pine.
					Sweetgum------------	90	
					Slash pine----------	86	
JR*:							
Johnston----------	1w	Slight	Severe	Severe	Loblolly pine-------	97	Loblolly pine, slash pine, baldcypress, yellow-poplar, sweetgum, green ash, water tupelo.
					Sweetgum------------	111	
					Water oak-----------	103	
					Baldcypress---------	---	
					Green ash-----------	---	
					White oak-----------	---	
					Southern red oak----	---	
Rutlege----------	2w	Slight	Severe	Severe	Loblolly pine-------	90	Loblolly pine, slash pine.
					Slash pine----------	86	
KnB---------- Kenansville	3s	Slight	Moderate	Moderate	Loblolly pine-------	80	Loblolly pine, slash pine.
					Longleaf pine-------	65	
LaB, LaC---------- Lakeland	4s	Slight	Moderate	Moderate	Slash pine----------	75	Slash pine, longleaf pine.
					Loblolly pine-------	75	
					Longleaf pine-------	61	
LbA---------- Leon	4w	Slight	Moderate	Moderate	Loblolly pine-------	74	Slash pine, loblolly pine.
					Slash pine----------	74	
					Longleaf pine-------	65	
LcB---------- Lucy	3s	Slight	Moderate	Moderate	Slash pine----------	80	Slash pine, loblolly pine.
					Longleaf pine-------	70	
					Loblolly pine-------	80	
Lm---------- Lumbee	2w	Slight	Severe	Severe	Loblolly pine-------	94	Loblolly pine, slash pine, water tupelo, sweetgum.
					Slash pine----------	91	
					Pond pine-----------	75	
					Water tupelo--------	70	
					Sweetgum------------	90	
					White oak-----------	---	
Ln---------- Lynchburg	2w	Slight	Moderate	Slight	Slash pine----------	91	Slash pine, loblolly pine, American sycamore, sweetgum.
					Loblolly pine-------	86	
					Longleaf pine-------	74	
					Yellow-poplar-------	92	
					Sweetgum------------	90	
					Southern red oak----	---	
					White oak-----------	---	
					Blackgum------------	---	
Ly---------- Lynn Haven	4w	Slight	Severe	Severe	Slash pine----------	70	Slash pine, loblolly pine.
					Loblolly pine-------	70	
					Longleaf pine-------	60	
Mc---------- McColl	2w	Slight	Severe	Severe	Loblolly pine-------	87	Loblolly pine, slash pine, sweetgum, American sycamore.
					Slash pine----------	86	
					Pond pine-----------	70	
OrA, OrB---------- Orangeburg	2o	Slight	Slight	Slight	Loblolly pine-------	86	Slash pine, loblolly pine.
					Slash pine----------	86	
					Longleaf pine-------	70	

See footnote at end of table.

TABLE 8 --WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
Os Osier	3w	Slight	Severe	Severe	Slash pine Loblolly pine Longleaf pine	80 80 68	Slash pine, loblolly pine.
Pa Pantego	1w	Slight	Severe	Severe	Loblolly pine Slash pine Pond pine Baldcypress Water tupelo Water oak	98 95 73 --- --- ---	Loblolly pine, slash pine, sweetgum, American sycamore, water tupelo.
Pb Paxville	1w	Slight	Severe	Severe	Loblolly pine Slash pine Pond pine Water oak Water tupelo Baldcypress	96 92 77 90 --- ---	Loblolly pine, slash pine, American sycamore, water tupelo.
PeA, PeB Persanti	2w	Slight	Moderate	Moderate	Loblolly pine Shortleaf pine Water oak Sweetgum	90 80 90 90	Loblolly pine, slash pine, sweetgum, yellow-poplar.
PoA Pocalla	3s	Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	80 80 70	Loblolly pine, slash pine.
PZ* Ponzer	4w	Slight	Severe	Severe	Slash pine Pond pine Water tupelo Baldcypress Sweetbay Loblolly pine	70 60 --- --- --- 70	Slash pine, loblolly pine, baldcypress, water tupelo.
Ra Rains	2w	Slight	Severe	Severe	Loblolly pine Slash pine Sweetgum	94 91 90	Loblolly pine, slash pine.
RnB Rimini	5s	Slight	Severe	Severe	Loblolly pine Slash pine Longleaf pine	65 65 55	Slash pine, longleaf pine.
Ru Rutlege	2w	Slight	Severe	Severe	Loblolly pine Slash pine	90 90	Loblolly pine, baldcypress, slash pine.
Sm Smithboro	2w	Slight	Moderate	Moderate	Loblolly pine Slash pine Sweetgum	90 90 90	Loblolly pine, slash pine, American sycamore, sweetgum.
SuA, SuB, SuC Summerton	3o	Slight	Slight	Slight	Loblolly pine Slash pine Longleaf pine	80 80 65	Loblolly pine, slash pine.
TA* Tawcaw	1w	Slight	Moderate	Moderate	Loblolly pine Sweetgum Water oak Water tupelo	100 100 90 ---	Loblolly pine, eastern cottonwood, American sycamore, sweetgum, water oak, cherrybark oak.
VaA, VaB Varina	3o	Slight	Slight	Slight	Slash pine Loblolly pine Longleaf pine	85 85 70	Slash pine, loblolly pine.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
BaB---------- Blanton	Severe: cutbanks cave.	Slight----------	Slight----------	Slight----------	Slight.
BrA---------- Brogdon	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
By---------- Byars	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Ca---------- Cantey	Severe: wetness, floods, too clayey.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Ch---------- Chastain	Severe: floods, wetness, too clayey.	Severe: floods, wetness, low strength.	Severe: floods, wetness, low strength.	Severe: floods, wetness, low strength.	Severe: floods, wetness, low strength.
CpA---------- Chipley	Severe: cutbanks cave.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Cr---------- Clarendon	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Slight.
Cx---------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, low strength.
DaA---------- Dothan	Moderate: wetness.	Slight----------	Moderate: wetness.	Slight----------	Slight.
DaB---------- Dothan	Moderate: wetness.	Slight----------	Moderate: wetness.	Moderate: slope.	Slight.
Dn---------- Dunbar	Severe: wetness, too clayey.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.
DuA---------- Duplin	Moderate: too clayey, wetness.	Moderate: shrink-swell.	Severe: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.
FaA---------- Faceville	Moderate: too clayey.	Slight----------	Slight----------	Slight----------	Moderate: low strength.
FaB---------- Faceville	Moderate: too clayey.	Slight----------	Slight----------	Moderate: slope.	Moderate: low strength.
FuB---------- Fuquay	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
FuC---------- Fuquay	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Jo---------- Johns	Severe: wetness.	Severe: floods.	Severe: wetness, floods.	Severe: wetness, floods.	Moderate: wetness, floods.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
JR*:					
Johnston	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Rutlege	Severe: wetness, cutbanks cave, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
KnB---- Kenansville	Severe: cutbanks cave.	Slight----	Slight----	Slight----	Slight.
LaB---- Lakeland	Severe: cutbanks cave.	Slight----	Slight----	Slight----	Slight.
LaC---- Lakeland	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
LbA---- Leon	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
LcB---- Lucy	Slight----	Slight----	Slight----	Slight----	Slight.
Lm---- Lumbee	Severe: wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.
Ln---- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
Ly---- Lynn Haven	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Mc---- McColl	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
OrA---- Orangeburg	Slight----	Slight----	Slight----	Slight----	Slight.
OrB---- Orangeburg	Slight----	Slight----	Slight----	Moderate: slope.	Slight.
Os---- Osier	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Pa---- Pantego	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pb---- Paxville	Severe: wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.
PeA, PeB---- Persanti	Severe: wetness, too clayey.	Moderate: wetness, shrink-swell, low strength.	Severe: wetness.	Moderate: wetness, shrink-swell, low strength.	Severe: low strength.
PoA---- Pocalla	Moderate: cutbanks cave.	Slight----	Slight----	Slight----	Slight.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
PZ*---------- Ponzer	Severe: wetness, floods.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.	Severe: wetness, floods, low strength.
Ra---------- Rains	Severe: wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.
RnB---------- Rimini	Moderate: cutbanks cave.	Slight----------	Slight----------	Slight----------	Slight.
Ru---------- Rutlege	Severe: wetness, cutbanks cave, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Sm---------- Smithboro	Severe: wetness, too clayey.	Severe: wetness, low strength.	Severe: wetness, low strength.	Severe: wetness, low strength.	Severe: wetness, low strength.
SuA---------- Summerton	Moderate: too clayey.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.	Moderate: low strength.
SuB---------- Summerton	Moderate: too clayey.	Moderate: low strength.	Moderate: low strength.	Moderate: slope, low strength.	Moderate: low strength.
SuC---------- Summerton	Moderate: too clayey, slope.	Moderate: low strength, slope.	Moderate: low strength, slope.	Severe: slope.	Moderate: low strength, slope.
TA*---------- Tawcaw	Severe: floods, wetness, too clayey.	Severe: floods, low strength.	Severe: floods, wetness, low strength.	Severe: floods, low strength.	Severe: floods, low strength.
UD*. Udorthents					
VaA---------- Varina	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
VaB---------- Varina	Slight----------	Slight----------	Slight----------	Moderate: slope.	Slight.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms used to rate soils. Absence of an entry means soil was not rated]

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BaB---- Blanton	Slight----	Severe: seepage.	Severe: too sandy.	Slight----	Poor: too sandy, seepage.
BrA---- Brogdon	Slight----	Severe: seepage.	Moderate: seepage.	Moderate: seepage.	Good.
By---- Byars	Severe: wetness, floods.	Moderate: excess humus.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness.
Ca---- Cantey	Severe: wetness, floods, percs slowly.	Severe: wetness.	Severe: wetness, floods, too clayey.	Severe: wetness, floods.	Poor: wetness, too clayey.
Ch---- Chastain	Severe: floods, wetness, percs slowly.	Severe: floods.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: too clayey, wetness.
CpA---- Chipley	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage.	Poor: too sandy, seepage.
Cr---- Clarendon	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Cx---- Coxville	Severe: wetness, percs slowly.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
DaA---- Dothan	Moderate: percs slowly.	Slight----	Severe: wetness.	Moderate: wetness.	Good.
DaB---- Dothan	Moderate: percs slowly.	Moderate: slope.	Severe: wetness.	Moderate: wetness.	Good.
Dn---- Dunbar	Severe: wetness, percs slowly.	Slight----	Severe: wetness, too clayey.	Severe: wetness.	Fair: too clayey.
DuA---- Duplin	Severe: wetness, percs slowly.	Slight----	Severe: wetness.	Severe: wetness.	Fair: too clayey.
FaA---- Faceville	Slight----	Moderate: seepage.	Moderate: too clayey.	Slight----	Fair: too clayey.
FaB---- Faceville	Slight----	Moderate: slope, seepage.	Moderate: too clayey.	Slight----	Fair: too clayey.
FuB---- Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight----	Slight----	Good.
FuC---- Fuquay	Moderate: slope, percs slowly.	Severe: slope.	Slight----	Moderate: slope.	Fair: slope.
Jo---- Johns	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Good.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
JR*:					
Johnston	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Rutlege	Severe: wetness, floods.	Severe: seepage, wetness.	Severe: wetness, seepage, floods.	Severe: wetness, seepage, floods.	Poor: wetness.
KnB---- Kenansville	Slight	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
LaB---- Lakeland	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
LaC---- Lakeland	Moderate: slope.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
LbA---- Leon	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage.	Poor: seepage, too sandy, wetness.
LcB---- Lucy	Slight	Severe: seepage.	Slight	Slight	Fair: too sandy.
Lm---- Lumbee	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Ln---- Lynchburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Good.
Ly---- Lynn Haven	Severe: wetness.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
Mc---- McColl	Severe: wetness, percs slowly, floods.	Slight	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness, too clayey.
OrA---- Orangeburg	Slight	Moderate: seepage.	Slight	Slight	Good.
OrB---- Orangeburg	Slight	Moderate: slope, seepage.	Slight	Slight	Good.
Os---- Osier	Severe: floods, wetness.	Severe: floods, seepage.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness, too sandy.
Pa---- Pantego	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Pb---- Paxville	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Poor: wetness.
PeA---- Persanti	Severe: wetness, percs slowly.	Slight	Moderate: wetness, too clayey.	Moderate: wetness.	Poor: too clayey.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
PeB---- Persanti	Severe: wetness, percs slowly.	Moderate: slope.	Moderate: wetness, too clayey.	Moderate: wetness.	Poor: too clayey.
PoA---- Pocalla	Slight----	Severe: seepage.	Moderate: seepage.	Moderate: seepage.	Fair: too sandy.
PZ*---- Ponzer	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Poor: wetness, excess humus.
Ra---- Rains	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Poor: wetness.
RnB---- Rimini	Slight----	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy.
Ru---- Rutlege	Severe: wetness, floods.	Severe: seepage, wetness.	Severe: wetness, seepage, floods.	Severe: wetness, seepage, floods.	Poor: wetness.
Sm---- Smithboro	Severe: wetness, percs slowly.	Slight----	Severe: wetness.	Severe: wetness.	Poor: wetness, too clayey.
SuA---- Summerton	Moderate: percs slowly.	Slight----	Severe: too clayey.	Slight----	Fair: too clayey.
SuB---- Summerton	Moderate: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight----	Fair: too clayey.
SuC---- Summerton	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Fair: too clayey.
TA*---- Tawcaw	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: too clayey.
UD*. Udorthents					
VaA---- Varina	Moderate: percs slowly.	Slight----	Slight----	Slight----	Good.
VaB---- Varina	Moderate: percs slowly.	Moderate: slope.	Slight----	Slight----	Good.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
BaB---- Blanton	Good	Fair: excess fines.	Unsuited	Poor: too sandy.
BrA---- Brogdon	Good	Poor: excess fines.	Unsuited	Poor: too sandy.
By---- Byars	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
Ca---- Cantey	Poor: wetness.	Unsuited	Unsuited	Poor: wetness, thin layer.
Ch---- Chastain	Poor: wetness, low strength.	Unsuited	Unsuited	Poor: wetness, too clayey.
CpA---- Chipley	Good	Fair: excess fines.	Unsuited	Poor: too sandy.
Cr---- Clarendon	Good	Unsuited	Unsuited	Poor: too sandy.
Cx---- Coxville	Poor: wetness, low strength.	Unsuited	Unsuited	Poor: wetness.
DaA, DaB---- Dothan	Fair: low strength.	Poor: excess fines.	Poor: excess fines.	Fair: too sandy.
Dn---- Dunbar	Poor: low strength, wetness.	Unsuited	Unsuited	Fair: thin layer.
DuA---- Duplin	Poor: low strength.	Unsuited	Unsuited	Fair: thin layer.
FaA, FaB---- Faceville	Fair: low strength.	Unsuited	Unsuited	Fair: too clayey.
FuB, FuC---- Fuquay	Good	Poor: excess fines.	Unsuited	Poor: too sandy.
Jo---- Johns	Fair: wetness.	Poor: excess fines.	Unsuited	Fair: thin layer, too sandy.
JR*:				
Johnston----	Poor: wetness, excess humus.	Poor: excess fines.	Poor: excess fines.	Poor: wetness.
Rutlege----	Poor: wetness.	Fair: excess fines.	Unsuited	Poor: too sandy, wetness.
KnB---- Kenansville	Good	Fair: excess fines.	Unsuited	Poor: too sandy.
LaB, LaC---- Lakeland	Good	Good	Unsuited	Poor: too sandy.
LbA---- Leon	Poor: wetness.	Fair: excess fines.	Unsuited	Poor: too sandy.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
LcB Lucy	Good	Poor: excess fines.	Poor: excess fines.	Poor: too sandy.
Lm Lumbee	Poor: wetness.	Poor: excess fines.	Unsuited	Poor: wetness.
Ln Lynchburg	Fair: wetness.	Unsuited	Unsuited	Good.
Ly Lynn Haven	Poor: wetness.	Fair: excess fines.	Unsuited	Poor: too sandy, wetness.
Mc McColl	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
OrA, OrB Orangeburg	Good	Unsuited	Unsuited	Fair: thin layer, too sandy.
Os Osier	Poor: wetness.	Fair: excess fines.	Unsuited	Poor: too sandy, wetness.
Pa Pantego	Poor: wetness.	Poor: excess fines.	Unsuited	Poor: wetness.
Pb Paxville	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
PeA, PeB Persanti	Poor: low strength.	Unsuited	Unsuited	Poor: thin layer.
PoA Pocalla	Good	Poor: excess fines, thin layer.	Unsuited	Poor: too sandy.
PZ* Ponzer	Poor: wetness, excess humus, low strength.	Unsuited	Unsuited	Poor: wetness.
Ra Rains	Poor: wetness.	Unsuited	Unsuited	Poor: wetness.
RnB Rimini	Good	Good	Unsuited	Poor: too sandy.
Ru Rutlege	Poor: wetness.	Fair: excess fines.	Unsuited	Poor: too sandy, wetness.
Sm Smithboro	Poor: low strength.	Unsuited	Unsuited	Poor: too clayey.
SuA, SuB Summerton	Fair: low strength.	Unsuited	Unsuited	Fair: thin layer, too sandy.
SuC Summerton	Fair: low strength.	Unsuited	Unsuited	Fair: thin layer, slope, too sandy.
TA* Tawcaw	Poor: low strength.	Unsuited	Unsuited	Poor: too clayey.
UD*. Udorthents				

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
VaA, VaB---------- Varina	Good----------	Unsuited----------	Unsuited----------	Fair: thin layer.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not evaluated]

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
BaB---- Blanton	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Not needed----	Droughty, seepage, fast intake.
BrA---- Brogdon	Moderate: seepage.	Moderate: seepage, piping.	Severe: deep to water.	Not needed----	Fast intake, seepage.
By---- Byars	Slight----	Moderate: compressible, shrink-swell.	Slight----	Wetness, percs slowly, poor outlets.	Wetness, percs slowly, floods.
Ca---- Cantey	Slight----	Moderate: compressible.	Slight----	Wetness, floods, percs slowly.	Wetness, floods, percs slowly.
Ch---- Chastain	Slight----	Moderate: compressible, low strength.	Slight----	Floods, wetness, percs slowly.	Floods, wetness, percs slowly.
CpA---- Chipley	Severe: seepage.	Severe: seepage, piping, unstable fill.	Moderate: deep to water.	Cutbanks cave----	Fast intake.
Cr---- Clarendon	Moderate: seepage.	Moderate: compressible, piping.	Severe: deep to water.	Favorable----	Favorable.
Cx---- Coxville	Slight----	Moderate: compressible.	Slight----	Wetness, percs slowly.	Wetness, percs slowly.
DaA, DaB---- Dothan	Slight----	Slight----	Severe: no water.	Not needed----	Favorable.
Dn---- Dunbar	Slight----	Moderate: compressible.	Moderate: slow refill, deep to water.	Percs slowly, wetness.	Wetness, percs slowly.
DuA---- Duplin	Slight----	Moderate: compressible.	Moderate: deep to water, slow refill.	Percs slowly----	Wetness, percs slowly.
FaA, FaB---- Faceville	Moderate: seepage.	Slight----	Severe: no water.	Not needed----	Favorable.
FuB, FuC---- Fuquay	Slight----	Moderate: piping.	Severe: deep to water.	Not needed----	Fast intake.
Jo---- Johns	Moderate: seepage.	Moderate: seepage.	Moderate: deep to water.	Cutbanks cave----	Wetness.
JR*: Johnston----	Severe: seepage.	Severe: piping.	Slight----	Poor outlets, floods.	Wetness, floods.
Rutlege----	Severe: seepage.	Severe: seepage, unstable fill, piping.	Slight----	Cutbanks cave, wetness, floods.	Wetness, fast intake, droughty.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
KnB---------- Kenansville	Severe: seepage.	Moderate: seepage.	Severe: deep to water.	Not needed-------	Fast intake, droughty.
LaB, LaC---------- Lakeland	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Not needed-------	Droughty, seepage, fast intake.
LbA---------- Leon	Severe: seepage.	Severe: seepage, piping, erodes easily.	Slight----------	Cutbanks cave, wetness.	Wetness.
LcB---------- Lucy	Severe: seepage.	Severe: seepage, piping, erodes easily.	Severe: deep to water.	Not needed-------	Erodes easily, fast intake, seepage.
Lm---------- Lumbee	Moderate: seepage.	Moderate: seepage.	Slight----------	Poor outlets, cutbanks cave.	Wetness.
Ln---------- Lynchburg	Moderate: seepage.	Moderate: piping.	Moderate: deep to water.	Favorable--------	Wetness.
Ly---------- Lynn Haven	Severe: seepage.	Severe: seepage, piping, erodes easily.	Slight----------	Cutbanks cave, wetness.	Wetness.
Mc---------- McColl	Slight----------	Moderate: piping.	Slight----------	Wetness, floods, poor outlets.	Wetness, floods.
OrA, OrB---------- Orangeburg	Moderate: seepage.	Slight----------	Severe: no water.	Not needed-------	Fast intake.
Os---------- Osier	Severe: seepage.	Severe: seepage, unstable fill.	Moderate: deep to water.	Floods, cutbanks cave.	Floods, seepage.
Pa---------- Pantego	Moderate: seepage.	Slight----------	Slight----------	Poor outlets-----	Wetness.
Pb---------- Paxville	Moderate: seepage.	Moderate: piping.	Slight----------	Favorable--------	Wetness.
PeA---------- Persanti	Slight----------	Moderate: low strength, piping.	Moderate: deep to water.	Wetness, percs slowly.	Wetness, percs slowly.
PeB---------- Persanti	Slight----------	Moderate: low strength, piping.	Moderate: deep to water.	Wetness, percs slowly.	Wetness, percs slowly, slope.
PoA---------- Pocalla	Severe: seepage.	Severe: seepage.	Severe: no water.	Not needed-------	Fast intake, droughty.
PZ*---------- Ponzer	Moderate: seepage.	Severe: excess humus.	Slight----------	Wetness, poor outlets.	Wetness.
Ra---------- Rains	Moderate: seepage.	Slight----------	Slight----------	Favorable--------	Wetness, floods.
RnB---------- Rimini	Severe: seepage.	Severe: seepage, unstable fill.	Severe: no water.	Not needed-------	Droughty, seepage.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for--			Features affecting--	
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation
Ru---------- Rutlege	Severe: seepage.	Severe: seepage, unstable fill, piping.	Slight----------	Cutbanks cave, wetness, floods.	Wetness, fast intake, droughty.
Sm---------- Smithboro	Slight----------	Moderate: compressible.	Slight----------	Percs slowly, wetness.	Slow intake, wetness, percs slowly.
SuA---------- Summerton	Moderate: seepage.	Moderate: low strength, piping.	Severe: deep to water.	Not needed-------	Favorable.
SuB, SuC---------- Summerton	Moderate: seepage.	Moderate: low strength, piping.	Severe: deep to water.	Not needed-------	Slope, percs slowly.
TA*---------- Tawcaw	Slight----------	Moderate: hard to pack.	Severe: slow refill.	Floods, percs slowly.	Floods, wetness, percs slowly.
UD*. Udorthents					
VaA---------- Varina	Slight----------	Slight----------	Severe: deep to water.	Not needed-------	Favorable.
VaB---------- Varina	Slight----------	Slight----------	Severe: deep to water.	Not needed-------	Slope.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 13.--RECREATIONAL DEVELOPMENT

[Some of the terms used in this table to describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry means soil was not rated]

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
BaB Blanton	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Severe: too sandy.
BrA Brogdon	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy.
By Byars	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Ca Cantey	Severe: wetness, floods, percs slowly.	Severe: wetness, floods.	Severe: wetness, floods, percs slowly.	Severe: wetness, floods.
Ch Chastain	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.
CpA Chipley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, soil blowing.	Severe: too sandy.
Cr Clarendon	Moderate: wetness.	Slight	Moderate: wetness.	Slight.
Cx Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DaA Dothan	Slight	Slight	Slight	Slight.
DaB Dothan	Slight	Slight	Moderate: slope.	Slight.
Dn Dunbar	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, percs slowly.	Moderate: wetness.
DuA Duplin	Moderate: percs slowly.	Slight	Moderate: wetness, percs slowly.	Slight.
FaA Faceville	Slight	Slight	Slight	Slight.
FaB Faceville	Slight	Slight	Moderate: slope.	Slight.
FuB Fuquay	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Severe: too sandy.
FuC Fuquay	Moderate: too sandy.	Moderate: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
Jo Johns	Moderate: floods, wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
JR*:				
Johnston	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.
Rutlege	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
KnB Kenansville	Moderate: too sandy.	Moderate: too sandy.	Severe: slope, too sandy.	Severe: too sandy.
LaB Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
LaC Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, slope.	Severe: too sandy.
LbA Leon	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
LcB Lucy	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Severe: too sandy.
Lm Lumbee	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ln Lynchburg	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
Ly Lynn Haven	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Mc McColl	Severe: wetness, floods, percs slowly.	Severe: wetness, floods.	Severe: wetness, floods, percs slowly.	Severe: wetness, floods.
OrA Orangeburg	Slight	Slight	Slight	Slight.
OrB Orangeburg	Slight	Slight	Moderate: slope.	Slight.
Os Osier	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Pa Pantego	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Pb Paxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
PeA Persanti	Moderate: percs slowly, wetness.	Slight	Moderate: percs slowly, wetness.	Slight.
PeB Persanti	Moderate: percs slowly, wetness.	Slight	Moderate: percs slowly, slope.	Slight.
PoA Pocalla	Moderate: too sandy.	Moderate: too sandy.	Severe: too sandy.	Severe: too sandy.

See footnote at end of table.

TABLE 13.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails
PZ* Ponzer	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ra Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
RnB Rimini	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
Ru Rutlege	Severe: wetness, floods.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
Sm Smithboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
SuA Summerton	Moderate: percs slowly.	Slight	Moderate: percs slowly.	Slight.
SuB Summerton	Moderate: percs slowly.	Slight	Moderate: percs slowly, slope.	Slight.
SuC Summerton	Moderate: percs slowly, slope.	Moderate: slope.	Severe: slope.	Slight.
TA* Tawcaw	Severe: floods.	Moderate: wetness, too clayey.	Severe: floods.	Moderate: too clayey, floods.
UD*. Udorthents				
VaA Varina	Slight	Slight	Slight	Slight.
VaB Varina	Slight	Slight	Moderate: slope.	Slight.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 14.--WILDLIFE HABITAT POTENTIALS

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates the soil was not rated]

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
BaB---- Blanton	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	---
BrA---- Brogdon	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
By---- Byars	Fair	Good	Good	Good	Good	Poor	Good	Good	Good	Fair	---
Ca---- Cantey	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	---
Ch---- Chastain	Very poor.	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good	---
CpA---- Chipley	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	---
Cr---- Clarendon	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
Cx---- Coxville	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	---
DaA, DaB---- Dothan	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
Dn---- Dunbar	Good	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	---
DuA---- Duplin	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
FaA---- Faceville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
FaB---- Faceville	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
FuB---- Fuquay	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.	---
FuC---- Fuquay	Poor	Fair	Good	Fair	Fair	Poor	Very	Good	Fair	Very	---
Jo---- Johns	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
JR*: Johnston----	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good	---
Rutlege----	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair	---
KnB---- Kenansville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
LaB, LaC---- Lakeland	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.	---
LbA---- Leon	Poor	Fair	Good	Poor	Fair	Fair	Poor	Fair	Fair	Poor	---

See footnote at end of table.

TABLE 14.--WILDLIFE HABITAT POTENTIALS--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
LcB---- Lucy	Poor	Fair	Good	Good	Good	Poor	Very poor.	Fair	Good	Very poor.	---
Lm---- Lumbee	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	---
Ln---- Lynchburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair	---
Ly---- Lynn Haven	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Poor	Fair	Fair	---
Mc---- McColl	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good	---
OrA, OrB---- Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---
Os---- Osier	Very poor	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair	---
Pa---- Pantego	Fair	Good	Good	Good	Good	Poor	Fair	Good	Good	Poor	---
Pb---- Paxville	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good	---
PeA, PeB---- Persant	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor	---
PoA---- Pocalla	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
PZ*---- Ponzer	Poor	Good	Good	Good	Good	Poor	Good	Good	Good	Fair	---
Ra---- Rains	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good	---
RnB---- Rimini	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.	---
Ru---- Rutlege	Very poor.	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair	---
Sm---- Smithboro	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair	---
SuA, SuB---- Summerton	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
SuC---- Summerton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.	---
TA*----	Very	Poor	Poor	Good	Fair	Fair	Fair	Poor	Fair	Fair	---
UD*. Udorthents											
VaA, VaB---- Varina	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.	---

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
BaB---------- Blanton	0-50	Sand----------	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	50-58	Sandy loam------	SM	A-2-4	0	100	100	85-95	20-30	---	NP
	58-78	Sandy clay loam, sandy loam.	SC, SM-SC	A-4, A-2-4	0	100	100	85-95	30-50	18-30	4-10
BrA---------- Brogdon	0-15	Sand----------	SM, SP-SM	A-2	0	100	98-100	65-90	10-20	---	NP
	15-36	Sandy loam------	SM, SM-SC	A-2, A-4	0	100	98-100	65-90	25-40	<30	NP-7
	36-56	Loamy sand, loamy fine sand, sand.	SM, SP-SM	A-2	0	100	96-100	60-90	10-30	---	NP
	56-75	Sandy loam, sandy clay loam, sandy clay.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	100	96-100	55-95	30-55	20-40	4-20
By---------- Byars	0-16	Loam----------	SM, SM-SC, ML, CL-ML	A-4	0	100	100	70-95	36-80	<30	NP-7
	16-75	Clay, clay loam,	CL, CH,	A-7-5,	0	100	100	90-100	60-95	41-75	17-42
Ca---------- Cantey	0-6	Loam----------	ML, CL-ML, SM-SC, CL	A-4, A-6, A-7	0	98-100	98-100	78-98	45-80	<49	NP-20
	6-75	Clay, sandy clay, silty clay.	CL, ML, MH, CH	A-6, A-7	0	98-100	98-100	75-100	55-95	28-66	12-38
Ch---------- Chastain	0-5	Loam----------	ML, CL, CL-ML	A-4, A-6	0	100	100	90-100	70-95	23-45	3-18
	5-52	Silty clay loam, silty clay, clay.	CL, CH, ML, MH	A-6, A-7	0	100	100	95-100	85-98	35-75	12-40
	52-72	Sand, loamy sand, sandy loam.	SP-SM, SM-SC, SM	A-2, A-3	0	100	100	65-90	5-35	<25	NP-10
CpA---------- Chipley	0-9	Sand----------	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	9-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
Cr---------- Clarendon	0-11	Loamy sand------	SM, SP-SM	A-2	0	98-100	95-100	65-90	10-30	<20	NP-3
	11-32	Sandy clay loam	SC, CL, SM-SC, CL-ML	A-4, A-6	0	98-100	95-100	75-95	36-55	20-40	5-15
	32-72	Sandy clay loam, sandy clay, sandy loam.	SC, CL, SM-SC, CL-ML	A-2, A-4, A-6	0	99-100	98-100	80-95	30-55	20-40	5-15
Cx---------- Coxville	0-14	Fine sandy loam	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	1-15
	14-80	Clay loam, sandy clay, clay.	CL, CH	A-6, A-7	0	100	100	90-98	53-80	30-55	15-35
DaA, DaB---------- Dothan	0-14	Loamy fine sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	14-35	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-45	<40	NP-15
	35-75	Sandy clay loam, sandy clay.	SM-SC, SC	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-50	25-45	4-18

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Dn---------- Dunbar	0-6	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	100	50-95	20-50	<20	NP-7
	6-80	Sandy clay, clay loam, clay.	CL, CH	A-6, A-7	0	100	100	85-95	50-70	36-60	18-35
DuA---------- Duplin	0-8	Fine sandy loam	SM, ML, SM-SC	A-2, A-4	0	100	100	67-98	24-58	<16	NP-7
	8-80	Sandy clay, clay loam, clay.	CL, CH	A-6, A-7	0	100	98-100	80-100	50-82	24-54	13-39
FaA, FaB---------- Faceville	0-7	Loamy fine sand	SM	A-2	0	90-100	85-100	72-97	13-25	---	NP
	7-10	Sandy clay loam	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	10-75	Sandy clay, clay, clay loam.	CL, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
FuB, FuC---------- Fuquay	0-30	Sand----------	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-35	---	NP
	30-42	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	85-100	85-100	60-80	23-45	<25	NP-13
	42-75	Sandy clay loam	SC, CL	A-2, A-4, A-6	0	95-100	90-100	60-93	28-55	20-39	8-25
Jo---------- Johns	0-17	Loamy sand------	SM, SM-SC	A-2, A-4	0	100	95-100	60-90	15-45	<20	NP-7
	17-38	Sandy clay loam, sandy loam.	SC, SM-SC, CL	A-2, A-4, A-6	0	100	95-100	60-90	30-55	20-35	4-15
	38-80	Sand, loamy sand	SM, SP-SM, SP	A-2, A-3	0	95-100	95-100	51-90	4-25	---	NP
JR*:											
Johnston----------	0-28	Loam----------	ML, CL, SM, SC	A-2, A-4	0	100	100	60-95	30-75	<35	NP-10
	28-40	Stratified fine sandy loam to sandy loam.	SM, SC, SM-SC	A-2, A-4	0	100	100	50-85	25-50	<35	NP-10
	40-65	Stratified loamy sand to sand.	SM, SP-SM	A-2, A-3	0	100	100	50-75	5-30	---	NP
Rutlege----------	0-10	Loamy sand------	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-25	<25	NP
	10-80	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP
KnB---------- Kenansville	0-24	Sand----------	SM	A-1, A-2	0	100	95-100	45-60	10-25	<25	NP-3
	24-36	Sandy loam, fine sandy loam.	SM, SC, SM-SC	A-2	0	100	95-100	50-65	20-35	<30	NP-10
	36-72	Sand, loamy sand	SP-SM, SM	A-1, A-2, A-3	0	100	95-100	40-60	5-30	---	NP
LaB, LaC---------- Lakeland	0-50	Sand----------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	50-89	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
LbA---------- Leon	0-20	Sand----------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
	20-60	Sand----------	SM, SP-SM	A-3, A-2-4	0	100	100	80-100	5-20	---	NP

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
LcB----------	0-26	Sand----------	SM, SP-SM	A-2	0	100	95-100	50-80	10-30	---	NP
Lucy	26-72	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	5-20
Lm----------	0-12	Sandy loam------	SM, SM-SC	A-2, A-4	0	100	85-100	65-90	15-45	<20	NP-7
Lumbee	12-37	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	100	90-100	65-95	30-49	19-35	4-15
	37-75	Loamy sand, sand, fine sand.	SP, SM, SP-SM	A-2, A-3	0	90-100	85-100	50-90	4-25	---	NP
Ln----------	0-7	Sandy loam------	SM, SM-SC	A-2, A-4	0	100	100	75-100	25-50	<30	NP-7
Lynchburg	7-55	Sandy clay loam, sandy loam, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	100	100	70-100	25-60	15-40	4-18
	55-72	Sandy clay loam, sandy clay, clay loam.	SM-SC, SC, CL, CL-ML	A-2, A-4, A-6	0	100	100	60-100	25-55	<35	NP-15
Ly----------	0-18	Sand----------	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
Lynn Haven	18-65	Sand, fine sand	SM, SP-SM	A-3, A-2-4	0	100	100	80-100	5-20	---	NP
	65-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	80-100	2-12	---	NP
Mc----------	0-7	Loam----------	SC, CL-ML, CL, SM-SC	A-4, A-6	0	100	95-100	75-90	45-65	20-40	5-20
McColl	7-14	Clay loam, sandy clay, clay.	SC, SM, CL, ML	A-4, A-6, A-7	0	100	95-100	80-98	36-75	25-50	8-23
	14-40	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	65-90	32-60	20-40	3-15
	40-80	Sandy clay loam, sandy loam, sandy clay.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	60-80	30-50	15-52	3-22
OrA, OrB----------	0-12	Loamy sand------	SM	A-2	0	98-100	95-100	60-75	14-27	---	NP
Orangeburg	12-50	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
	50-74	Sandy clay loam, sandy clay, clay loam.	SC, CL	A-6, A-4	0	98-100	95-100	70-97	40-65	25-40	8-21
Os----------	0-5	Loamy sand------	SP-SM	A-2, A-3	0	100	98-100	60-85	5-12	---	NP
Osier	5-70	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	95-100	65-90	5-20	---	NP
Pa----------	0-12	Loam----------	SM, SM-SC, CL, CL-ML	A-2, A-4	0	100	100	60-95	25-75	<30	NP-12
	12-55	Sandy clay loam, sandy loam, clay loam.	SC, CL, SM	A-4, A-6, A-2	0	100	95-100	80-100	30-80	25-40	4-16
	55-75	Clay loam, sandy clay, sandy clay loam.	CL, SC, MH	A-6, A-7	0	100	95-100	90-100	36-80	30-49	11-24

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Pb Paxville	0-13	Loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	100	100	80-98	30-60	<35	NP-7
	13-48	Sandy clay loam, sandy loam.	CL-ML, CL, SM-SC, SC	A-2, A-4, A-6	0	100	98-100	60-98	30-60	25-40	5-15
	48-80	Sandy loam, loamy sand, sand.	SM, SP-SM, SP	A-2	0	100	98-100	60-98	4-35	<30	NP-4
PeA, PeB Persanti	0-6	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	100	95-100	80-98	40-72	<35	NP-7
	6-60	Clay, silty clay, clay loam.	CL, ML, CH, MH	A-6, A-7	0	100	98-100	90-100	65-96	35-80	12-46
	60-72	Clay, clay loam, silty clay.	CL, ML, CH, MH	A-4, A-6, A-7	0	100	98-100	90-100	60-90	30-55	8-25
PoA Pocalla	0-28	Sand	SP-SM, SM	A-2, A-3	0	100	100	50-70	5-20	---	NP
	28-38	Sandy loam, loamy sand.	SM	A-2	0	100	100	50-75	15-30	<25	NP-4
	38-56	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	100	100	50-75	5-20	---	NP
	56-80	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	100	100	60-80	28-50	15-35	3-15
PZ* Ponzer	0-28	Muck	Pt	A-8	0	---	---	---	---	---	---
	28-48	Sandy loam, sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	100	100	65-95	36-70	20-40	8-20
	48-72	Sand, loamy sand.	SP, SM, SP-SM	A-2, A-3	0	90-100	85-100	50-90	4-25	---	NP
Ra Rains	0-7	Fine sandy loam	SM, SM-SC, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	7-50	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	98-100	65-98	30-70	18-40	4-18
	50-62	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	65-98	36-72	18-45	4-22
	62-80	Sandy loam, sandy clay loam, sandy clay.	SM, SC, ML, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-60	15-40	3-18
RnB Rimini	0-60	Sand	SP, SP-SM	A-3	0	100	98-100	60-98	2-5	---	NP
	60-72	Sand, fine sand	SP, SP-SM	A-3	0	100	98-100	75-100	3-10	---	NP
	72-80	Sand, fine sand	SP, SP-SM	A-3	0	100	98-100	75-100	2-5	---	NP
Ru Rutlege	0-10	Loamy sand	SM, SP-SM	A-2, A-3	0	95-100	95-100	50-80	5-25	<25	NP
	10-80	Sand, loamy sand, loamy fine sand.	SP-SM, SP, SM	A-2, A-3	0	95-100	95-100	50-80	2-25	<20	NP
Sm Smithboro	0-7	Loam	ML, CL, CL-ML	A-4	0	100	100	85-100	51-80	<35	NP-10
	7-75	Clay, clay loam, silty clay loam.	CL, ML, CH, MH	A-6, A-7	0	100	100	95-100	70-95	34-60	11-30

See footnote at end of table.

TABLE 15.--ENGINEERING PROPERTIES AND CLASSIFICATIONS--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SuA, SuB, SuC------ Summerton	0-7	Loamy fine sand	SM	A-2	0	100	95-100	60-95	15-35	<30	NP-4
	7-72	Sandy clay, clay loam, clay.	CL, ML, CH, MH	A-6, A-7	0	100	98-100	90-100	55-86	35-71	11-35
TA*---------- Tawcaw	0-12	Silty clay loam	CL, CH	A-6, A-7, A-4	0	100	100	85-100	75-95	28-55	8-26
	12-60	Silty clay loam, silty clay, clay.	CL, CH	A-6, A-7	0	100	100	90-100	51-98	30-65	11-33
UD*. Udorthents											
VaA, VaB---------- Varina	0-6	Sandy loam------	SM, SM-SC	A-2, A-4	0	95-100	92-100	75-90	15-49	<25	NP-7
	6-28	Sandy clay, clay loam, clay.	SC, CL, SM, ML	A-4, A-6, A-7	0	95-100	92-100	80-95	36-65	28-47	8-20
	28-75	Sandy clay, clay loam, clay.	SC, CL, ML, SM	A-4, A-6, A-7	0	95-100	92-100	80-95	36-65	28-47	8-20

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means greater than. Absence of an entry means data were not estimated]

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion	
						Uncoated steel	Concrete
	In	In/hr	In/in	pH			
BaB----------	0-50	6.0-20	0.03-0.07	4.5-6.0	Very low-------	Low----------	High.
Blanton	50-58	2.0-6.0	0.10-0.15	4.5-5.5	Low----------	Moderate-------	High.
	58-78	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	High----------	High.
BrA----------	0-15	6.0-20	0.04-0.08	5.1-6.5	Very low-------	Low----------	High.
Brogdon	15-36	2.0-6.0	0.10-0.14	4.5-5.5	Low----------	Low----------	High.
	36-56	2.0-6.0	0.06-0.11	4.5-5.5	Very low-------	Low----------	High.
	56-75	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	Low----------	High.
By----------	0-16	0.6-2.0	0.11-0.16	4.5-6.0	Low----------	High----------	High.
Byars	16-75	0.06-0.2	0.14-0.18	3.6-5.5	Moderate-------	High----------	High.
Ca----------	0-6	0.6-2.0	0.14-0.18	4.5-6.5	Low----------	High----------	High.
Cantey	6-75	0.06-0.2	0.11-0.16	4.5-5.5	Moderate-------	High----------	High.
Ch----------	0-5	0.2-0.6	0.12-0.18	4.5-5.5	Moderate-------	High----------	High.
Chastain	5-52	0.06-0.2	0.12-0.16	4.5-5.5	Moderate-------	High----------	High.
	52-72	0.06-0.2	0.12-0.14	4.5-5.5	Moderate-------	High----------	High.
CpA----------	0-9	6.0-20	0.05-0.10	5.1-6.0	Very low-------	Low----------	High.
Chipley	9-80	6.0-20	0.03-0.08	4.5-5.5	Very low-------	Low----------	High.
Cr----------	0-11	2.0-6.0	0.08-0.12	5.1-6.0	Low----------	Moderate-------	High.
Clarendon	11-32	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	Moderate-------	High.
	32-72	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	Moderate-------	High.
Cx----------	0-14	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	High----------	High.
Coxville	14-80	0.2-0.6	0.14-0.18	4.5-5.5	Moderate-------	High----------	High.
DaA, DaB----------	0-14	2.0-6.0	0.06-0.10	4.5-6.0	Very low-------	Moderate-------	Moderate.
Dothan	14-35	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	Moderate-------	Moderate.
	35-75	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	Moderate-------	Moderate.
Dn----------	0-6	2.0-6.0	0.10-0.15	5.1-6.0	Low----------	High----------	High.
Dunbar	6-80	0.2-0.6	0.13-0.18	4.5-5.5	Moderate-------	High----------	High.
DuA----------	0-8	2.0-6.0	0.10-0.15	5.1-6.5	Low----------	Moderate-------	High.
Duplin	8-80	0.2-0.6	0.13-0.18	4.5-5.5	Moderate-------	High----------	High.
FaA, FaB----------	0-7	6.0-20	0.06-0.09	4.5-5.5	Low----------	Low----------	Moderate.
Faceville	7-10	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	Low----------	Moderate.
	10-75	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	Low----------	Moderate.
FuB, FuC----------	0-30	>6.0	0.04-0.09	4.5-6.0	Low----------	Low----------	High.
Fuquay	30-42	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	Low----------	High.
	42-75	0.06-0.2	0.10-0.13	4.5-5.5	Low----------	Low----------	High.
Jo----------	0-17	2.0-6.0	0.08-0.14	5.1-6.0	Low----------	Moderate-------	High.
Johns	17-38	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	Moderate-------	High.
	38-80	6.0-20	0.03-0.06	4.5-5.5	Low----------	Moderate-------	High.
JR*:							
Johnston----------	0-28	2.0-6.0	0.10-0.20	4.5-5.5	Low----------	High----------	High.
	28-40	6.0-20	0.06-0.12	4.5-5.5	Low----------	High----------	High.
	40-65	6.0-20	0.02-0.07	4.5-5.5	Low----------	High----------	High.
Rutlege----------	0-10	6.0-20	0.04-0.10	3.6-5.0	Low----------	High----------	High.
	10-80	6.0-20	0.04-0.08	3.6-5.0	Low----------	High----------	High.
KnB----------	0-24	6.0-20	0.04-0.10	4.5-6.0	Low----------	Low----------	High.
Kenansville	24-36	2.0-6.0	0.10-0.14	4.5-6.0	Low----------	Low----------	High.
	36-72	6.0-20	<0.05	4.5-6.0	Low----------	Low----------	High.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion	
						Uncoated steel	Concrete
	In	In/hr	In/in	pH			
LaB, LaC----------	0-50	>20	0.05-0.08	4.5-6.0	Very low-------	Low----------	Moderate.
Lakeland	50-89	>20	0.03-0.08	4.5-6.0	Very low-------	Low----------	Moderate.
LbA----------	0-20	6.0-20	0.02-0.05	3.6-5.5	Very low-------	High----------	High.
Leon	20-60	0.6-6.0	0.05-0.10	3.6-5.5	Very low-------	High----------	High.
LcB----------	0-26	>6.0	0.06-0.10	5.1-6.0	Low----------	Low----------	High.
Lucy	26-72	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	Low----------	High.
Lm----------	0-12	2.0-6.0	0.08-0.12	4.5-6.0	Low----------	High----------	High.
Lumbee	12-37	0.6-2.0	0.12-0.16	4.5-5.5	Low----------	High----------	High.
	37-75	6.0-20	0.03-0.06	4.5-5.5	Low----------	High----------	High.
Ln----------	0-7	2.0-6.0	0.09-0.13	5.1-6.5	Low----------	High----------	High.
Lynchburg	7-55	0.6-2.0	0.12-0.16	3.6-5.5	Low----------	High----------	High.
	55-72	0.6-2.0	0.12-0.16	3.6-5.5	Low----------	High----------	High.
Ly----------	0-18	6.0-20	0.02-0.05	4.5-5.5	Very low-------	High----------	High.
Lynn Haven	18-65	0.6-6.0	0.05-0.10	4.5-5.5	Very low-------	High----------	High.
	65-80	>20	0.01-0.05	4.5-5.5	Very low-------	High----------	High.
Mc----------	0-7	0.6-2.0	0.12-0.16	5.1-6.0	Low----------	High----------	High.
McColl	7-14	0.2-0.6	0.13-0.17	4.5-5.5	Low----------	High----------	High.
	14-40	0.06-0.2	0.07-0.11	4.5-5.5	Low----------	High----------	High.
	40-80	0.2-2.0	0.08-0.12	4.5-5.5	Low----------	High----------	High.
OrA, OrB----------	0-12	2.0-6.0	0.06-0.08	5.1-6.5	Low----------	Moderate-------	Moderate.
Orangeburg	12-50	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	Moderate-------	Moderate.
	50-74	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	Moderate-------	Moderate.
Os----------	0-5	6.0-20	0.03-0.10	4.5-6.0	Low----------	High----------	High.
Osier	5-70	6.0-20	0.03-0.10	4.5-6.0	Low----------	High----------	High.
Pa----------	0-12	2.0-6.0	0.10-0.20	4.5-5.5	Low----------	Moderate-------	High.
Pantego	12-55	0.6-2.0	0.12-0.20	3.6-5.5	Low----------	High----------	High.
	55-75	0.6-2.0	0.15-0.20	3.6-5.5	Low----------	High----------	High.
Pb----------	0-13	2.0-6.0	0.12-0.16	4.5-6.0	Low----------	High----------	High.
Paxville	13-48	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	High----------	High.
	48-80	6.0-20	0.05-0.08	4.5-5.5	Low----------	High----------	High.
PeA, PeB----------	0-6	0.2-2.0	0.11-0.15	5.1-6.5	Low----------	High----------	High.
Persanti	6-60	0.06-0.2	0.12-0.15	4.5-5.5	Moderate-------	High----------	High.
	60-80	0.06-0.2	0.12-0.15	4.5-5.5	Moderate-------	High----------	High.
PoA----------	0-28	>6.0	0.03-0.10	4.5-6.5	Low----------	Low----------	High.
Pocalla	28-38	2.0-6.0	0.08-0.13	4.5-5.5	Low----------	Low----------	High.
	38-56	6.0-20	0.03-0.10	4.5-5.5	Low----------	Low----------	High.
	56-80	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	Low----------	High.
PZ*----------	0-28	0.06-0.2	0.20-0.26	3.6-5.5	----------	High----------	High.
Ponzer	28-48	0.2-0.6	0.10-0.16	4.5-5.5	Low----------	High----------	High.
	48-72	>6.0	0.05-0.08	4.5-5.5	Low----------	High----------	High.
Ra----------	0-7	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	High----------	High.
Rains	7-50	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	High----------	High.
	50-62	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	High----------	High.
	62-80	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	High----------	High.
RnB----------	0-60	>20	0.02-0.05	3.6-5.5	Low----------	Low----------	Low.
Rimini	60-72	0.6-2.0	0.03-0.07	3.6-5.5	Low----------	Low----------	Low.
	72-80	>20	0.02-0.05	3.6-5.5	Low----------	Low----------	Low.
Ru----------	0-10	6.0-20	0.04-0.10	3.6-5.0	Low----------	High----------	High.
Rutlege	10-80	6.0-20	0.04-0.08	3.6-5.0	Low----------	High----------	High.
Sm----------	0-7	0.6-2.0	0.15-0.20	4.5-6.0	Low----------	High----------	High.
Smithboro	7-75	0.06-0.2	0.14-0.18	3.6-5.5	Moderate-------	High----------	High.

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Soil name and map symbol	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Risk of corrosion	
						Uncoated steel	Concrete
	In	In/hr	In/in	pH			
SuA, SuB, SuC------	0-7	6.0-20	0.05-0.09	4.5-6.5	Low----------	High----------	High.
Summerton	7-72	0.2-0.6	0.10-0.14	3.6-5.5	Low----------	High----------	High.
TA*----------	0-12	0.06-0.6	0.12-0.18	4.5-6.0	Moderate-------	High----------	High.
Tawcaw	12-60	0.06-0.2	0.12-0.16	4.5-6.0	Moderate-------	High----------	High.
UD*.							
Udorthents							
VaA, VaB----------	0-6	2.0-6.0	0.08-0.13	5.1-6.0	Low----------	Moderate-------	High.
Varina	6-28	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	Moderate-------	High.
	28-75	0.06-0.2	0.06-0.09	4.5-5.5	Low----------	Moderate-------	High.

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "brief," "apparent," and "perched." The symbol > means more than. Absence of an entry indicates that the feature is not a concern]

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
BaB---- Blanton	A	None----	---	---	>6.0	---	---
BrA---- Brogdon	B	None----	---	---	>6.0	---	---
By---- Byars	D	Common----	Long----	Dec-Mar	0-1.0	Apparent	Nov-Apr
Ca---- Cantey	D	Frequent----	Long----	Nov-Apr	0-1.0	Apparent	Nov-Apr
Ch---- Chastain	D	Common----	Very long----	Dec-Apr	0-1.0	Apparent	Nov-May
CpA---- Chipley	C	None----	---	---	2.0-3.0	Apparent	Jun-Sep
Cr---- Clarendon	C	None----	---	---	1.5-2.5	Apparent	Dec-Mar
Cx---- Coxville	D	None----	---	---	0-2.5	Apparent	Nov-Apr
DaA, DaB---- Dothan	B	None----	---	---	3.5-4.0	Perched	Jan-Apr
Dn---- Dunbar	D	None----	---	---	1.0-2.5	Apparent	Nov-May
DuA---- Duplin	C	None----	---	---	2.0-3.5	Apparent	Dec-Apr
FaA, FaB---- Faceville	B	None----	---	---	>6.0	---	---
FuB, FuC---- Fuquay	B	None----	---	---	2.5-4.0	Perched	Jan-Mar
Jo---- Johns	C	Rare----	---	---	1.5-3.0	Apparent	Nov-Apr
JR*:							
Johnston----	D	Frequent----	Long----	Nov-Jul	(1)-1.5	Apparent	Nov-Jun
Rutlege----	D	Common----	Brief----	Dec-May	0-1.0	Apparent	Dec-May
KnB---- Kenansville	A	None----	---	---	>6.0	---	---
LaB, LaC---- Lakeland	A	None----	---	---	>6.0	---	---
LbA---- Leon	A/D	None----	---	---	0-1.0	Apparent	Jun-Feb
LcB---- Lucy	A	None----	---	---	>6.0	---	---
Lm---- Lumbee	D	Rare----	---	---	0-1.0	Apparent	Nov-Apr
Ln---- Lynchburg	B/D	None----	---	---	0.5-1.5	Apparent	Nov-Apr

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table		
		Frequency	Duration	Months	Depth	Kind	Months
					Ft		
Ly---------- Lynn Haven	B/D	None----------	---	---	0-1.0	Apparent	Jun-Feb
Mc---------- McColl	D	Common--------	Long----------	Dec-Apr	0-1.0	Apparent	Nov-Apr
OrA, OrB---------- Orangeburg	B	None----------	---	---	>6.0	---	---
Os---------- Osier	D	Common--------	Brief----------	Dec-Apr	0.0-1.0	Apparent	Nov-Mar
Pa---------- Pantego	D	None to rare	Very brief-----	Nov-Feb	0-1.0	Apparent	Nov-Apr
Pb---------- Paxville	D	Rare----------	---	---	0-1.0	Apparent	Nov-Apr
PeA, PeB---------- Persanti	C	None----------	---	---	2.0-3.5	Apparent	Dec-Apr
PoA---------- Pocalla	A	None----------	---	---	>6.0	---	---
PZ*---------- Ponzer	D	Frequent------	Very long------	Nov-Jun	+1-1.0	Apparent	Nov-Jun
Ra---------- Rains	B/D	Rare----------	---	---	0-1.0	Apparent	Nov-Apr
RnB---------- Rimini	A	None----------	---	---	>6.0	---	---
Ru---------- Rutlege	D	Common--------	Brief----------	Dec-May	0-1.0	Apparent	Dec-May
Sm---------- Smithboro	D	None----------	---	---	0.5-1.5	Apparent	Dec-Mar
SuA, SuB, SuC----- Summerton	B	None----------	---	---	>6.0	---	---
TA*---------- Tawcaw	C	Common--------	Long----------	Dec-Apr	1.5-2.5	Apparent	Nov-Apr
UD* Udorthents							
VaA, VaB---------- Varina	C	None----------	---	---	2.5-5.0	Perched	Dec-Apr

* See map unit description for the composition and behavior characteristics of the map unit.

TABLE 18.--ENGINEERING TEST DATA

[Tests performed by the South Carolina State Highway Department in cooperation with the Bureau of Public Roads, U.S. Department of Commerce, in accordance with standard procedures of the American Association of State Highway and Transportation Officials (AASHTO) (1). NP means nonplastic]

Soil name and sample number	Parent material	Laboratory number	Depth from surface	Mechanical analysis[1]				Liquid limit	Plasticity index	Classification	
				Percentage passing sieve--			Percentage smaller than 0.005 mm			AASHTO[2]	Unified[3]
				No. 10	No. 60	No. 200					
			In					Pct			
Cantey loam[4]--------- (S74SC-17-9)	Unconsolidated stream deposits of clayey sediment.	I-72636	0-6	100	93	79	51	49	19	A-7-5(13)	ML
		I-72637	25-52	100	99	88	66	66	31	A-7-5(20)	MH
		I-72638	52-80	100	100	93	76	40	23	A-7-5(20)	CL
Persanti fine sandy loam.[5] (S74SC-17-10)	Unconsolidated clayey Coastal Plain sediment.	I-72639	0-6	100	95	72	31	NP	NP	A-4(7)	ML
		I-72640	22-31	100	98	91	68	68	33	A-7-5(20)	MH
		I-72641	42-60	100	98	96	81	79	46	A-7-5(20)	CH
Pocalla sand[6]-------- (S74SC-17-1)	Loamy Coastal Plain sediment.	I-72625	0-8	100	39	9	4	NP	NP	A-3(0)	SP-SM
		I-72626	28-38	100	48	21	17	NP	NP	A-2-4(0)	SM
		I-72627	48-56	100	43	9	5	NP	NP	A-3(0)	SP-SM
		I-72628	56-66	100	51	28	23	25	3	A-2-4(0)	SM
Rains fine sandy loam.[7] (S74SC-17-13)	Loamy Coastal Plain sediment.	I-72649	0-7	100	95	56	24	NP	NP	A-4(4)	ML
		I-72650	11-26	100	96	68	39	35	4	A-4(7)	ML
		I-72651	50-62	100	94	62	42	43	11	A-7-5(6)	ML
Smithboro loam[8]------ (S72SC-17-1)	Clayey Coastal Plain sediment.	I-26588	0-7	100	95	69	23	NP	NP	A-4(7)	ML
		I-26589	13-22	100	98	84	54	34	14	A-6(10)	CL
		I-26590	40-65	100	96	83	60	45	16	A-7-6(11)	ML
Summerton loamy fine sand.[9] (S74SC-17-11)	Clayey Coastal Plain sediment.	I-72642	0-7	100	78	30	11	NP	NP	A-2-4(0)	SM
		I-72643	9-22	100	86	61	49	50	15	A-7-5(8)	ML
		I-72644	22-40	100	95	86	71	71	35	A-7-5(20)	MH
		I-72645	56-75	100	95	78	65	66	35	A-7-5(20)	CH

[1]Mechanical analysis according to AASHTO Designation T 99-57 (1). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHTO procedure, the fine material is analyzed by the hydrometer method and the various grain-sized fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-sized fractions. The mechanical analysis data used in this table are not suitable for naming textural classes for soils.

[2]Based on AASHTO classification (M-145-66) (1).

[3]Based on Unified classification (D-2487-66T) (2).

[4]About 1,700 feet southwest from Sellers on U.S. Highway 301, about 200 feet southwest on S.C. Secondary Highway 313, 600 feet north on Sellers community road, 500 feet northwest on woods road, and about 50 feet northeast of road.

[5]2 miles northeast of Latta on U.S. Highway 301 and 501; 1.5 miles southeast on S.C. Secondary Highway 23, one-fourth mile east from intersection of S.C. Secondary Highways 23 and 71, and about 300 feet south of S.C. Secondary Highway 71.

[6]1 mile southeast of Latta on S.C. Secondary Highway 160, one-fourth mile west on farm road under powerline, and 200 feet north from edge of field.

[7]1.25 miles southeast of Hamer on S.C. Secondary Highway 25, about 300 feet southwest on dirt road, and 75 feet northwest of dirt road.

[8]2 miles southwest of Dillon, one-fourth mile west of intersection of S.C. Secondary Highway 25 and SCL railroad, and 150 feet southeast of S.C. Secondary Highway 48.

[9]1 mile northwest of Floydale on S.C. Highway 57, 2,000 feet northwest of intersection of S.C. Secondary Highway 71 and S.C. Highway 57, about 200 feet northeast from the road, and about 300 feet southwest of SCL railroad track.

TABLE 19.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Brogdon	Coarse-loamy, siliceous, thermic Plinthic Paleudults
Byars	Clayey, kaolinitic, thermic Umbric Paleaquults
Cantey	Clayey, kaolinitic, thermic Typic Albaquults
Chastain	Fine, kaolinitic, acid, thermic Typic Fluvaquents
Chipley	Thermic, coated Aquic Quartzipsamments
Clarendon	Fine-loamy, siliceous, thermic Plinthaquic Paleudults
Coxville	Clayey, kaolinitic, thermic Typic Paleaquults
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Dunbar	Clayey, kaolinitic, thermic Aeric Paleaquults
Duplin	Clayey, kaolinitic, thermic Aquic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Johns	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Aquic Hapludults
Johnston	Coarse-loamy, siliceous, acid, thermic Cumulic Humaquepts
Kenansville	Loamy, siliceous, thermic Arenic Hapludults
Lakeland	Thermic, coated Typic Quartzipsamments
Leon	Sandy, siliceous, thermic Aeric Haplaquods
Lucy	Loamy, siliceous, thermic Arenic Paleudults
Lumbee	Fine-loamy over sandy or sandy-skeletal, siliceous, thermic Typic Ochraquults
Lynchburg	Fine-loamy, siliceous, thermic Aeric Paleaquults
Lynn Haven	Sandy, siliceous, thermic Typic Haplaquods
McColl	Clayey, kaolinitic, thermic Typic Fragiaquults
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Osier	Siliceous, thermic Typic Psammaquents
Pantego	Fine-loamy, siliceous, thermic Umbric Paleaquults
Paxville	Fine-loamy, siliceous, thermic Typic Umbraquults
Persanti	Clayey, kaolinitic, thermic Aquic Paleudults
*Pocalla	Loamy, siliceous, thermic Arenic Plinthic Paleudults
*Ponzer	Loamy, mixed, dysic, thermic Terric Medisaprists
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Rimini	Sandy, siliceous, thermic Grossarenic Entic Haplohumods
Rutlege	Sandy, siliceous, thermic Typic Humaquepts
Smithboro	Clayey, kaolinitic, thermic Aeric Paleaquults
Summerton	Clayey, kaolinitic, thermic Typic Paleudults
Tawcaw	Fine, kaolinitic, thermic Fluvaquentic Dystrochrepts
Varina	Clayey, kaolinitic, thermic Plinthic Paleudults

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LEGEND

NEARLY LEVEL TO SLOPING SOILS ON RIDGES AND ON THE UPPER PART OF SIDE SLOPES

1 — LAKELAND–RUTLEGE–CHIPLEY: Excessively drained, very poorly drained, and moderately well drained soils that are sandy throughout.

2 — FACEVILLE–COXVILLE–VARINA: Well drained soils that have a loamy to sandy surface layer and a clayey subsoil and poorly drained soils that have a loamy surface layer and a clayey subsoil.

3 — DOTHAN–COXVILLE–FUQUAY: Well drained soils that have a sandy surface layer and a loamy subsoil and poorly drained soils that have a loamy surface layer and a clayey subsoil.

4 — PERSANTI–COXVILLE–VARINA: Moderately well drained, poorly drained, and well drained soils that have a loamy surface layer and a clayey subsoil.

DOMINANTLY NEARLY LEVEL SOILS ON THE LOWER PART OF SIDE SLOPES AND ON FLATS.

5 — CANTEY–SMITHBORO–PERSANTI: Poorly drained, somewhat poorly drained, and moderately well drained soils that have a loamy surface layer and a clayey subsoil.

6 — COXVILLE–SMITHBORO: Poorly drained and somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil.

NEARLY LEVEL SOILS ON FLOOD PLAINS

7 — JOHNSTON–RUTLEGE–CHIPLEY: Very poorly drained soils that are loamy throughout or sandy throughout and moderately well drained soils that are sandy throughout.

8 — PONZER: Very poorly drained soils that have a mucky surface layer and loamy underlying material.

9 — CHASTAIN: Poorly drained soils that have a loamy surface layer and a clayey subsoil.

10 — TAWCAW: Somewhat poorly drained soils that have a loamy surface layer and a clayey subsoil.

Compiled 1977

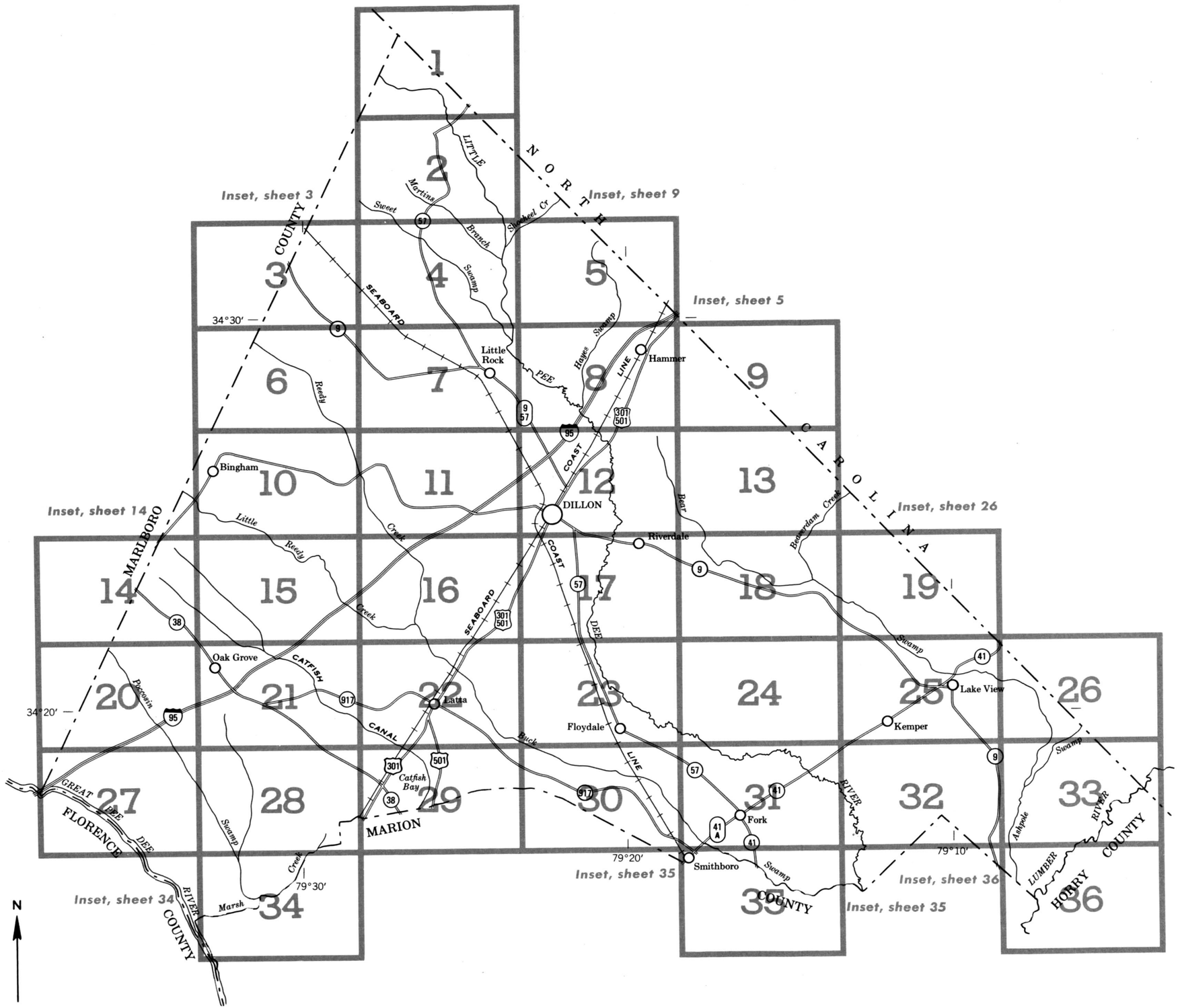
Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION
SOUTH CAROLINA LAND RESOURCES CONSERVATION COMMISSION

GENERAL SOIL MAP

DILLON COUNTY, SOUTH CAROLINA

Scale 1:190,080
0 1 2 3 4 Miles



INDEX TO MAP SHEETS

DILLON COUNTY, SOUTH CAROLINA

SOIL LEGEND

The first capital letter is the initial one of the soil name. The second position is a lower case letter for a narrowly defined unit and a capital letter for a broadly defined unit.1/ The third position, if used, is a capital letter and connotes slope class. Symbols without a slope letter are for nearly level soils.

SYMBOL	NAME
BaB	Blanton sand, 0 to 6 percent slopes
BrA	Brogdon sand, 0 to 2 percent slopes
By	Byars loam
Ca	Cantey loam
Ch	Chastain loam, frequently flooded
CpA	Chipley sand, 0 to 2 percent slopes
Cr	Clarendon loamy sand
Cx	Coxville fine sandy loam
DaA	Dothan loamy fine sand, 0 to 2 percent slopes
DaB	Dothan loamy fine sand, 2 to 6 percent slopes
Dn	Dunbar fine sandy loam
DuA	Duplin fine sandy loam, 0 to 2 percent slopes
FaA	Faceville loamy fine sand, 0 to 2 percent slopes
FaB	Faceville loamy fine sand, 2 to 6 percent slopes
FuB	Fuquay sand, 0 to 6 percent slopes
FuC	Fuquay sand, 6 to 10 percent slopes
Jo	Johns loamy sand
JR	Johnston-Rutlege association, frequently flooded
KnB	Kenansville sand, 0 to 4 percent slopes
LaB	Lakeland sand, 0 to 6 percent slopes
LaC	Lakeland sand, 6 to 10 percent slopes
LbA	Leon sand, 0 to 2 percent slopes
LcB	Lucy sand, 2 to 6 percent slopes
Lm	Lumbee sandy loam
Ln	Lynchburg sandy loam
Ly	Lynn Haven sand
Mc	McColl loam
OrA	Orangeburg loamy sand, 0 to 2 percent slopes
OrB	Orangeburg loamy sand, 2 to 6 percent slopes
Os	Osier loamy sand
Pa	Pantego loam
Pb	Paxville loam
PeA	Persanti fine sandy loam, 0 to 2 percent slopes
PeB	Persanti fine sandy loam, 2 to 6 percent slopes
PoA	Pocalla sand, 0 to 2 percent slopes
PZ	Ponzer soils
Ra	Rains fine sandy loam
RnB	Rimini sand, 0 to 6 percent slopes
Ru	Rutlege loamy sand
Sm	Smithboro loam
SuA	Summerton loamy fine sand, 0 to 2 percent slopes
SuB	Summerton loamy fine sand, 2 to 6 percent slopes
SuC	Summerton loamy fine sand, 6 to 10 percent slopes
TA	Tawcaw association, frequently flooded
UD	Udorthents
VaA	Varina sandy loam, 0 to 2 percent slopes
VaB	Varina sandy loam, 2 to 6 percent slopes

1/ Consecutive capital letters in the map symbol indicates the delineations generally are much larger and the composition of the unit is more variable than for others in the survey area. Composition has been controlled well enough to be interpreted for the anticipated uses of the soils.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool (Davis Airstrip; FLOOD POOL LINE)

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEMS & DESIGNATIONS

- Interstate (79)
- Federal (410)
- State (52)
- County, farm or ranch (378)

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small (water; w)

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) (Indian Mound)
- Located object (label) (Tower)
- Tank (label) (GAS)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label) (CANAL)
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial (water; w)
- Intermittent (int; i)

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS (CeA; FoB2)

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot
- Dug ponds
- Borrow area

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 1

DILLON COUNTY, SOUTH CAROLINA NO. 1

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

2 460 000 FEET

595 000 FEET

585 000 FEET

2 485 000 FEET

(Joins sheet 2)

DaB DaA FuB Ra LaB Cx Cr Ln Pb Jo JR Lm LaC Os CpA PoA KnB Ca Ru Dn

ROBESON COUNTY

MARLBORO COUNTY

LITTLE PEE DEE RIVER

NORTH CAROLINA

57

N

1 Mile

5000 Feet

0 1/4 1/2 3/4 1

0 1000 2000 3000 4000 5000

Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 2

(2)

N

(Joins sheet 1)

2 485 000 FEET

580 000 FEET

ROBESON COUNTY

NORTH CAROLINA

LITTLE PEE DEE RIVER

Martins Branch

Sweat Swamp

DEE RIVER

1 Mile

5000 Feet

Scale 1:20000

(Joins inset, sheet 3)

(Joins inset, sheet 9)

(Joins sheet 4)

2 465 000 FEET

465 000 FEET

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SOUTH CAROLINA NO. 2

DILLON COUNTY, SOUTH CAROLINA

DILLON COUNTY, SOUTH CAROLINA NO. 3

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N

Scale 1:20000

1 Mile | 5000 Feet

0 ¼ ½ ¾ 1

0 1000 2000 3000 4000 5000

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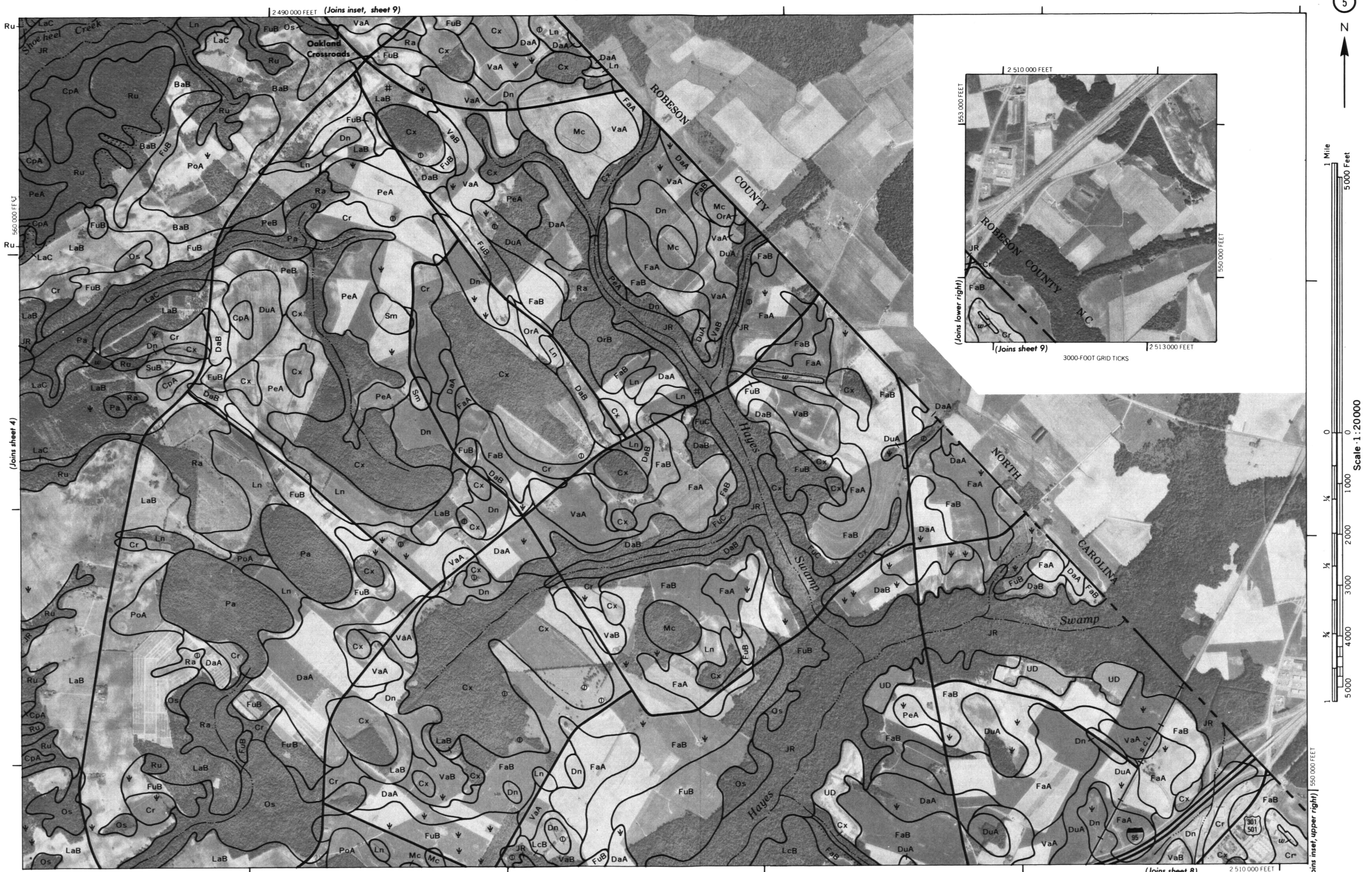

DILLON COUNTY, SOUTH CAROLINA NO. 5

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DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 6

6

N

Scale 1:20000

1 Mile 5000 Feet

0 0

¼ 1000

½ 2000

¾ 3000

1 4000

1¼ 5000

(Joins sheet 3)

2 460 000 FEET

545 000 FEET

535 000 FEET

2 440 000 FEET

(Joins sheet 10)

(Joins sheet 7)

McCormick Crossroads

COUNTY

MARLBORO

Reedy Creek

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Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA NO. 6

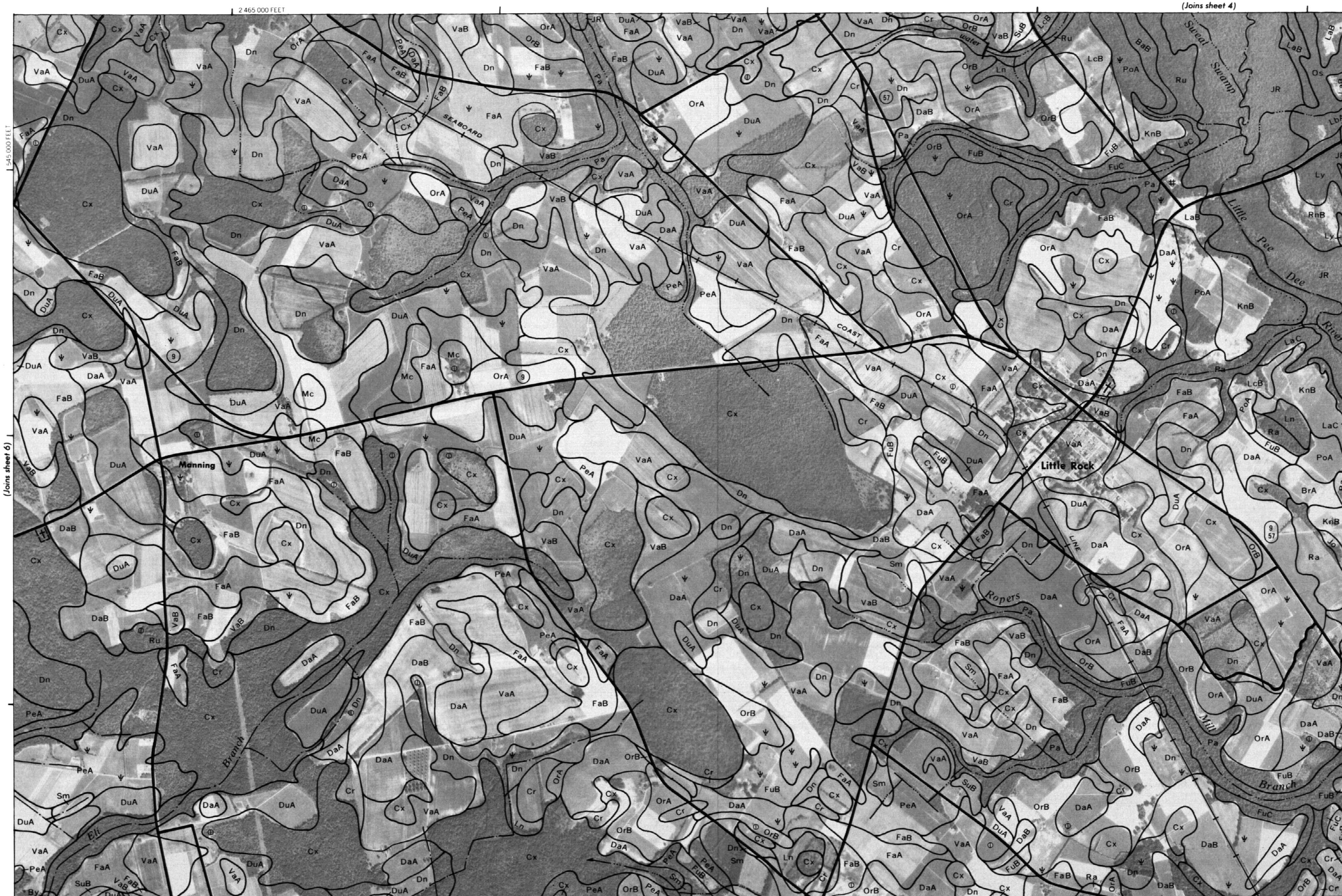
N

(Joins sheet 4)

2 465 000 FEET

545 000 FEET

(Joins sheet 6)



(Joins sheet 8)

(Joins sheet 11)

2 485 000 FEET

535 000 FEET

1 Mile

5000 Feet

Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA NO. 7

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DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 8

8

N

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 7)

(Joins sheet 5)

(Joins sheet 9)

(Joins sheet 12)

2 510 000 FEET

2 490 000 FEET

545 000 FEET

535 000 FEET

Hamer

Five Forks

Moccasin Bluff

PEE DEE

Swamp

Hayes Branch

Ropers Mill Branch

LITTLE RIVER

SEABOARD COAST LINE

water

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Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 8

DILLON COUNTY, SOUTH CAROLINA NO. 9

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

9

N

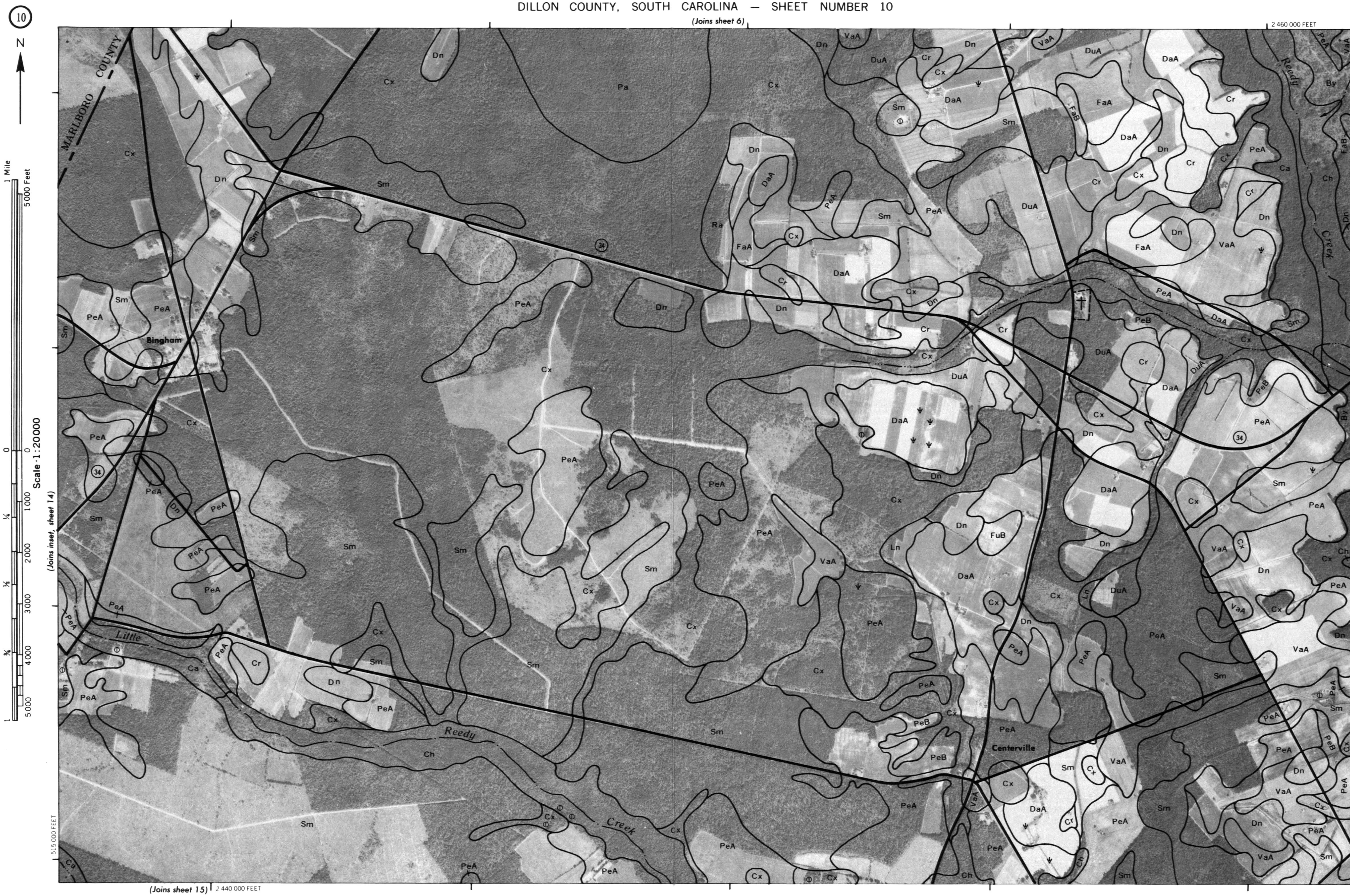
1 Mile
5000 Feet
0
0
Scale · 1:20000
1
5000
¾
4000
½
3000
¼
2000
0
1000

2 515 000 FEET
545 000 FEET
2 485 000 FEET
575 000 FEET
565 000 FEET
2 495 000 FEET
535 000 FEET
2 535 000 FEET

(Joins inset, sheet 5)
(Joins sheet 8)
(Joins sheet 2)
(Joins sheet 5)
(Joins sheet 13)

ROBESON COUNTY, NORTH CAROLINA

Cotton Valley
Lilly Bay
Shoeheel Creek



This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA NO. 10

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 11

DILLON COUNTY, SOUTH CAROLINA NO. 11

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned

2 465 000 FEET

530 000 FEET

(Joins sheet 7)

(Joins sheet 10)

Bunker Hill

Betsy Jackson Bay

Reedy Creek

(Joins sheet 16)

2 485 000 FEET

520 000 FEET

(Joins sheet 12)

11

N

1 Mile

5000 Feet

Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 12

12

N

(Joins sheet 8)

2 510 000 FEET

530 000 FEET

(Joins sheet 11)

Scale · 1:20000

1 Mile 5000 Feet

0 0

¼ 1000

½ 2000

¾ 4000

1 5000

520 000 FEET

(Joins sheet 13)

(Joins sheet 17)

2 490 000 FEET

DILLON AIRPORT

DILLON (county seat)

SEABOARD

COAST LINE

Swamp

Maple Swamp

Bear Swamp

PEE DEE RIVER

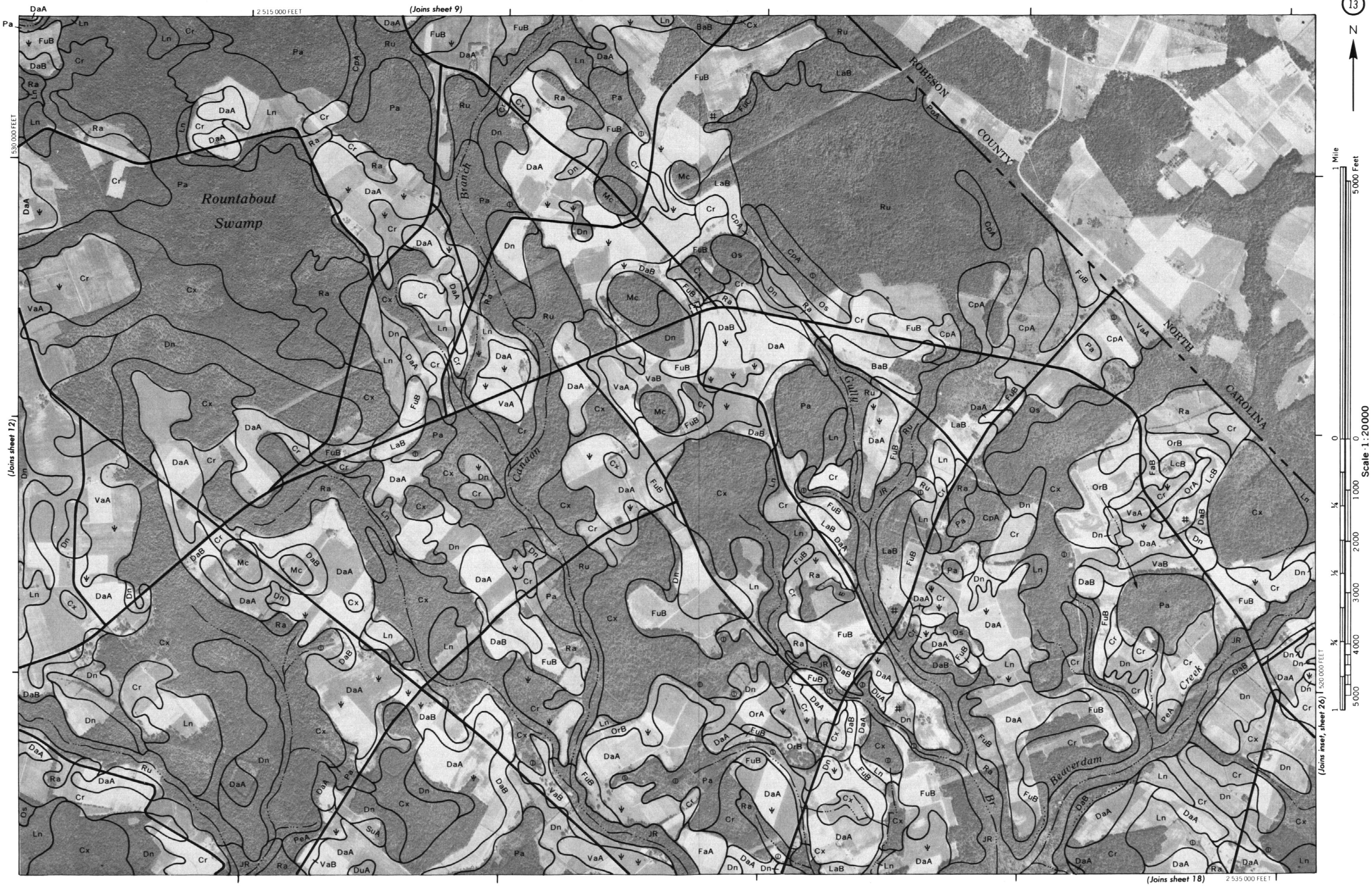
LITTLE PEE DEE

water

DaA Dn DuA FaB FuB FuC KnB LaB LaC LbA Ln Lm Ly Mc OrB Pa Pb PeA PoA Ra RnB Ru Sm SuB UD VaA VaB

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture. Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 12



DILLON COUNTY, SOUTH CAROLINA NO. 13

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

14

N

1 Mile
5000 Feet

Scale 1:20000

2 435 000 FEET

530 000 FEET

515 000 FEET

2 430 000 FEET

(Joins upper right)

(Joins sheet 10)

(Joins inset, lower left)

510 000 FEET

500 000 FEET

2 445 000 FEET

(Joins sheet 20)

(Joins sheet 15)

COUNTY

MARLBORO

Little Reedy Creek

LbA

CpA

LaB

LaC

RnB

Ru

UD

PoA

Cx

Ca

Sm

PeA

Os

PZ

Ra

FuB

BaB

Pb

PeB

DaA

Jo

KnB

Lm

w

34

38

Φ

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture. Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA NO. 14

DILLON COUNTY, SOUTH CAROLINA NO. 15

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 16

16

N

(Joins sheet 11)

2 485 000 FEET

515 000 FEET

1 Mile

5000 Feet

Scale · 1:20000

(Joins sheet 15)

500 000 FEET

(Joins sheet 22)

2 465 000 FEET

(Joins sheet 17)

Creek

Mill

Creek

Old

Creek

Reedy

Creek

Little

Reedy

Creek

BUCK

SWAMP

water

water

LINE

COAST

SEABOARD

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 16

DILLON COUNTY, SOUTH CAROLINA NO. 17

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 18

18

N

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 17)

(Joins sheet 13)

(Joins sheet 19)

(Joins sheet 24)

2 535 000 FEET

515 000 FEET

500 000 FEET

2 515 000 FEET

Gaddys Millpond

Mckenzie Pond

Bear Swamp

Sand Ridge Bay

This map is compiled on 1970 aerial photography by the U.S. Department of Agriculture. Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SOUTH CAROLINA NO. 18

DILLON COUNTY, SOUTH CAROLINA

(Joins inset, sheet 26)

2 540 000 FEET

515 000 FEET

(Joins sheet 18)

(Joins sheet 25)

2 560 000 FEET

505 000 FEET

ROBESON COUNTY

NORTH CAROLINA

Bear Swamp

Big Coupen Swamp

19

N

1 Mile

5000 Feet

Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA NO. 19

This map is compiled on 1973 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately ydistituned

20

N

1 Mile
5000 Feet
0
Scale · 1 : 20000
1 5000 ¼ 2000 ½ 3000 ¾ 4000

2 435 000 FEET
495 000 FEET
485 000 FEET
2 415 000 FEET

(Joins sheet 14)
(Joins sheet 21)
(Joins sheet 27)

DaA LaB PeB PeA Ru Ca Os Pb Dn Cx DuA CpA BaB Lm FuC SuA Ra Cr Jo By Sm SuB TrA OrA water

COUNTY

MARLBORO

Poccosin Swamp

95

This map is compiled on 1972 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 20

N

2 440 000 FEET

495 000 FEET

(Joins sheet 1,5)

(Joins sheet 20)

(Joins sheet 22)

(Joins sheet 28)

2 460 000 FEET

485 000 FEET

Oak Grove

Berrys Crossroads

CATFISH CANAL

water

1 Mile

5000 Feet

Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA NO. 21

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown are approximately positioned

22

N

(Joins sheet 16)

2 485 000 FEET

495 000 FEET

(Joins sheet 23)

Scale 1:20000

1 Mile 0 5000 Feet

0 1000 2000 3000 4000 5000

(Joins sheet 21)

485 000 FEET

(Joins sheet 29)

2 465 000 FEET

Bass Crossroads

Forest Hills

LATTA

BUCK

SWAMP

COAST LINE

SEABOARD

CATFISH CANAL

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA NO. 22

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 23

DILLON COUNTY, SOUTH CAROLINA NO. 23

This map is compiled on 1973 aerial photographs by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned

2 490 000 FEET

495 000 FEET

(Joins sheet 17)

(Joins sheet 22)

(Joins sheet 24)

(Joins sheet 30)

2 510 000 FEET

485 000 FEET

Kelly Bay

Cypress Branch

LITTLE PEE DEE RIVER

BUCK SWAMP

SEABOARD COAST LINE

Floydale

23

N

1 Mile

5 000 Feet

Scale 1:20000

24

N

Scale 1:20000

1 Mile 5000 Feet

0 0

1/4 1000

1/2 2000

3/4 4000

1 5000

(Joins sheet 18)

(Joins sheet 23)

(Joins sheet 31)

(Joins sheet 25)

2 515 000 FEET

485 000 FEET

500 000 FEET

Ben Pond

Cypress Ponds

Carmichael Crossroads

Fort Chapel

PEE DEE STATE PARK

water

Butts Br

Bell Sw

Lord Br

Indian Br

Boggy Br

Haynes Br

LITTLE PEE DEE RIVER

This map is compiled on 1975 aerial photography by the U.S. Department of Agriculture Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA NO. 24

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 25

25

N

1 Mile
5000 Feet
Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA NO. 25

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

26

N

1 Mile
5 000 Feet

Scale 1:20000

2 585 000 FEET

500 000 FEET

2 543 000 FEET

524 000 FEET

519 000 FEET

(Joins sheet 25)

485 000 FEET

2 565 000 FEET

(Joins sheet 33)

2 538 000 FEET

(Joins sheet 19)

(Joins sheet 13)

ROBESON COUNTY

NORTH CAROLINA

Bear Swamp

JR

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 26

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 27

(Joins sheet 20)

2 415 000 FEET

480 000 FEET

27

N

Poccosin Swamp

MARLBORO COUNTY

GREAT PEE DEE RIVER

FLORENCE COUNTY

95

water

Ca Sm PeA SuA SuB PeB TA UD

1 Mile

5000 Feet

Scale · 1 : 20000

(Joins sheet 28)

470 000 FEET

(Joins inset, sheet 34)

2 435 000 FEET

DILLON COUNTY, SOUTH CAROLINA NO. 27

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 28

28

N

(Joins sheet 21)

2 460 000 FEET

480 000 FEET

(Joins sheet 29)

1 Mile

5 000 Feet

0

0

Scale 1:20000

(Joins sheet 27)

470 000 FEET

2 440 000 FEET

(Joins sheet 34)

Gum

Swamp

Poccosin

Swamp

Swamp

Cud

water

water

COUNTY

MARION

PeA PeB Sm Ca By FuB Cr BaB BrA Pa Ra LaB Ru Jo Ly Pb PoA DaA Lm Ln Cx DaB DuA VaA SuA

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 28

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 29

29

N

2 465 000 FEET

2 485 000 FEET

480 000 FEET

470 000 FEET

(Joins sheet 22)

(Joins sheet 28)

(Joins sheet 30)

Pigon Bay

SEABOARD

COAST LINE

CATFISH CANAL

JR

COUNTY

MARION

1 Mile

5000 Feet

Scale 1:20000

DILLON COUNTY, SOUTH CAROLINA NO. 29

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 30

30

N

(Joins sheet 23)

(Joins sheet 29)

(Joins sheet 31)

(Joins inset A, sheet 35)

2 510 000 FEET

480 000 FEET

470 000 FEET

2 490 000 FEET

BUCK

SEABOARD

SWAMP

MARION

COUNTY

COAST LINE

The Gulley

1 Mile

5000 Feet

Scale 1:20000

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid tracks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 30

DILLON COUNTY, SOUTH CAROLINA NO. 31

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners of sections are approximately plotted

2 515 000 FEET

480 000 FEET

(Joins sheet 24)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 35)

2 535 000 FEET

470 000 FEET

PEE DEE RIVER

LITTLE

Hayes Br

BUCK

SWAMP

Squires

Fork

MARION COUNTY

31

N

1 Mile

5000 Feet

Scale 1:20000

32

N

(Joins sheet 25)

2 560 000 FEET

485 000 FEET

1 Mile

5000 Feet

Scale 1:20000

(Joins sheet 31)

470 000 FEET

2 540 000 FEET (Joins inset B, sheet 35)

(Joins sheet 33)

(Joins inset, sheet 36)

Crutchlow Bay

Little Pee Dee River

Mill Branch

Hards

MARION COUNTY

This map is compiled on 1975 aerial photography by the U.S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 32

DILLON COUNTY, SOUTH CAROLINA NO. 33

This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Soil boundaries and symbols are approximately positioned
Coordinate grid ticks and land division corners, if shown, are approximately positioned

(Joins sheet 32)
(Joins sheet 26)
(Joins sheet 36)

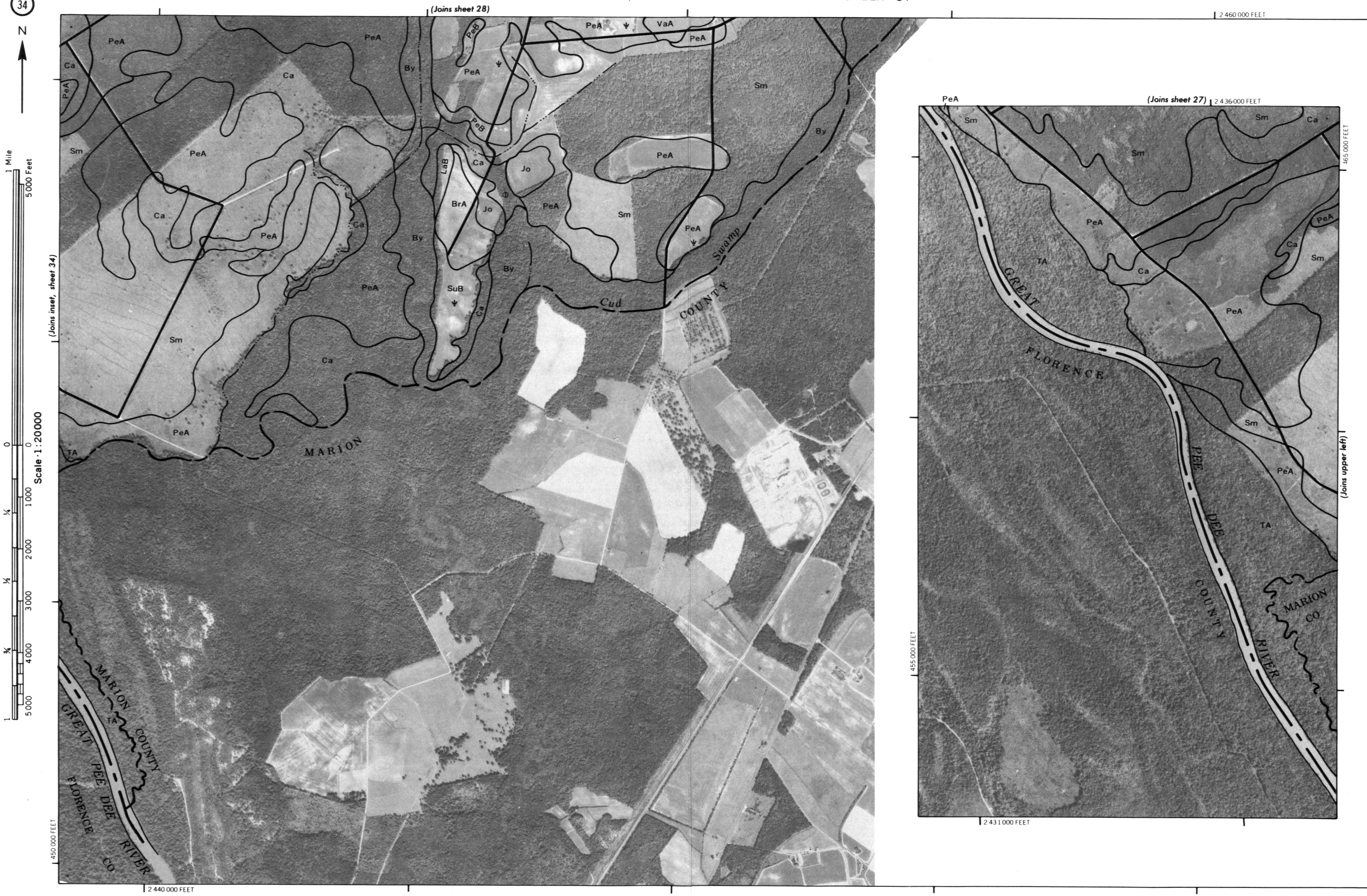
2 565 000 FEET
485 000 FEET
2 585 000 FEET
470 000 FEET

N

Scale 1:20000
1 Mile
5000 Feet

Swamp
Bear
ROBESON COUNTY
NORTH CAROLINA
Deadmans Lake
Floyd Lake
RIVER
HORRY COUNTY
LUMBER
Watermellon Bluff
Big Thick
ASHPOLE SWAMP

DILLON COUNTY, SOUTH CAROLINA — SHEET NUMBER 34

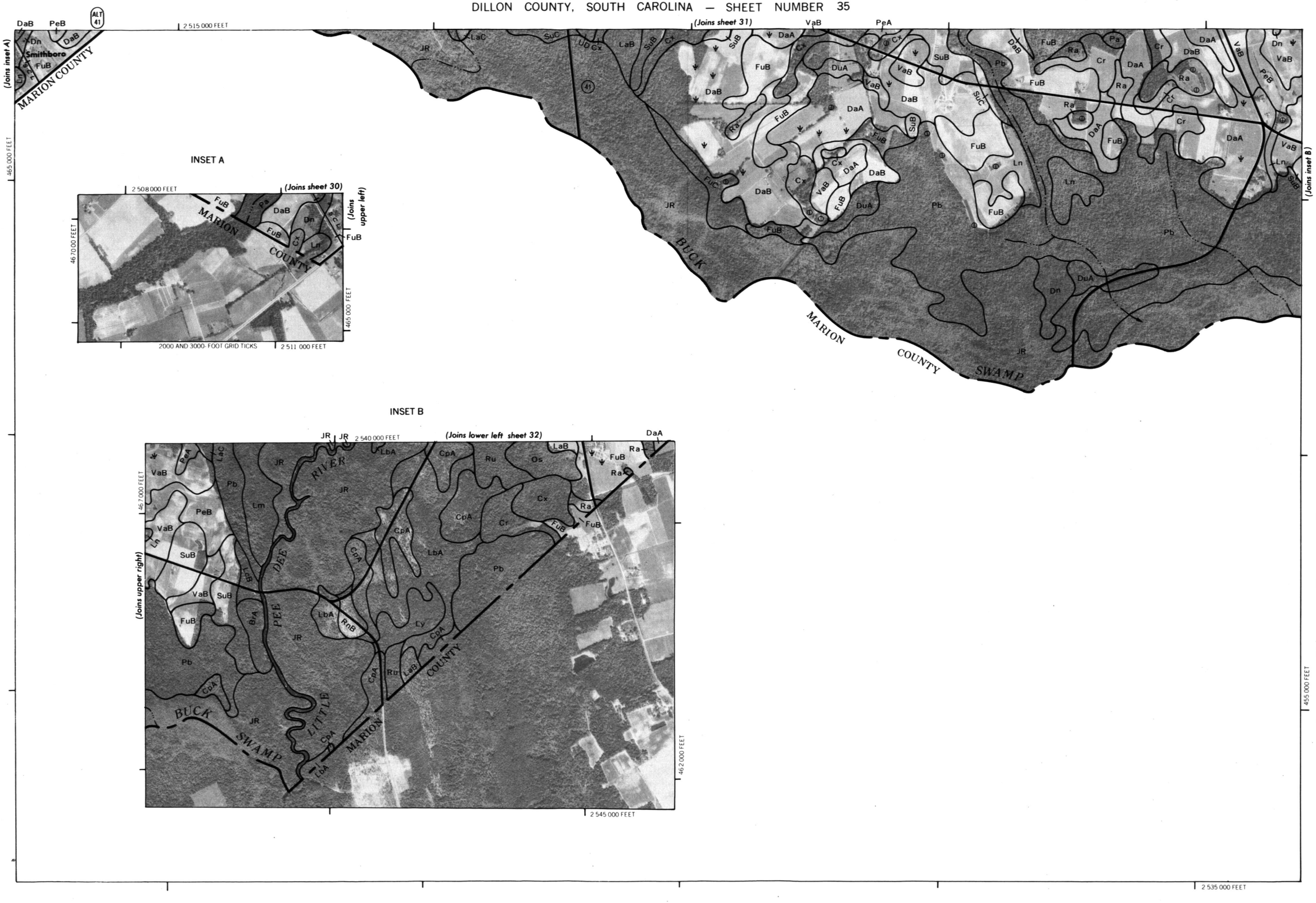


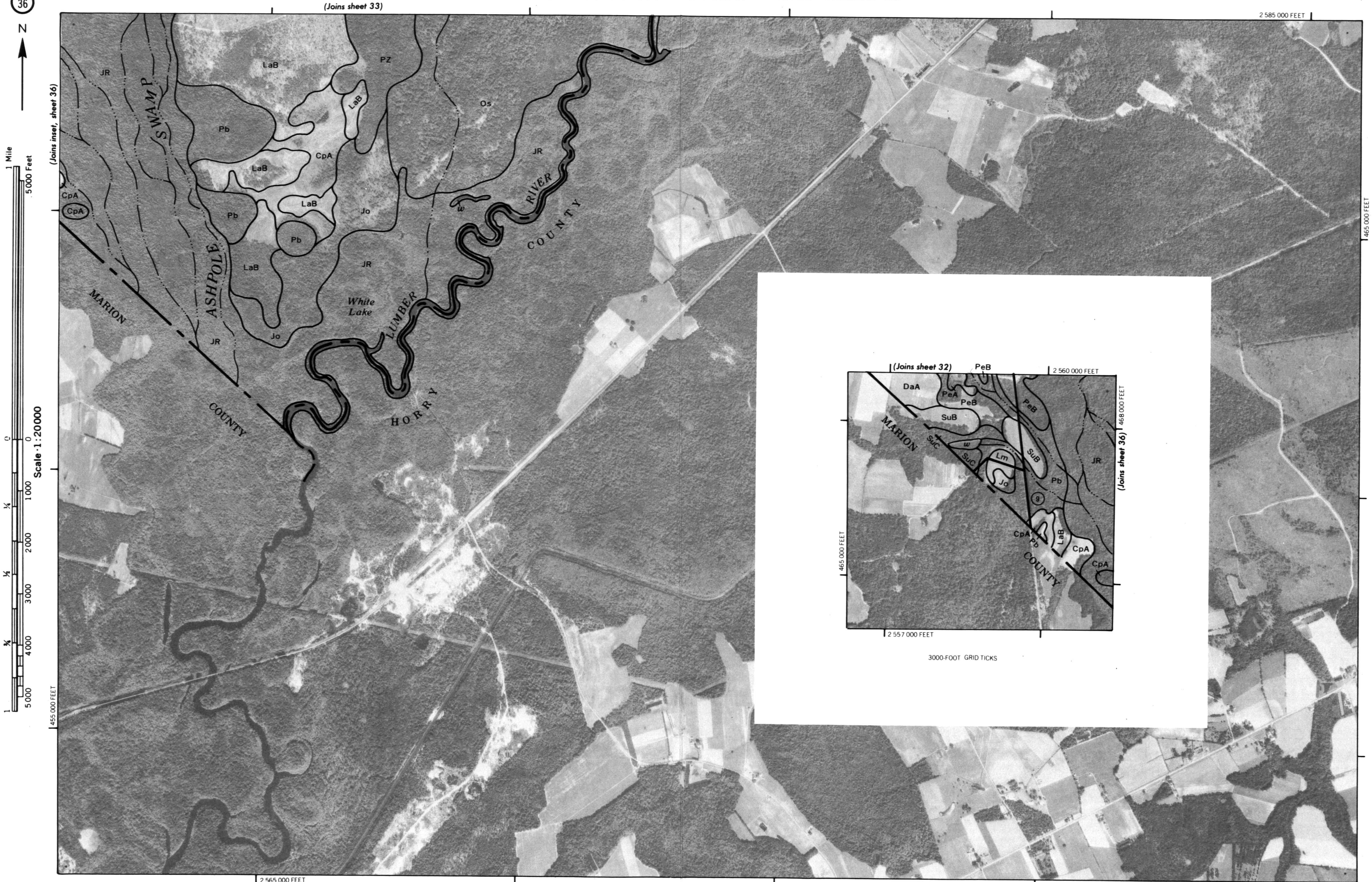
This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned

DILLON COUNTY, SOUTH CAROLINA NO. 34

DILLON COUNTY, SOUTH CAROLINA NO. 35

This map is compiled on 1973 aerial photography by the U. S. Department of Agriculture Soil Conservation Service and cooperating agencies
Coordinate grid ticks and land division corners, if shown, are approximately positioned





This map is compiled on 1975 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies.
Coordinate grid ticks and land division corners, if shown, are approximately positioned.

DILLON COUNTY, SOUTH CAROLINA NO. 36